

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



Reserve  
asB952  
.B75U5  
1977

US UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

Plant Protection and Quarantine Programs

**HANDBOOK  
OF  
PLANT TOLERANCES  
TO  
METHYL BROMIDE**

REVISED November 1977

AD-33 Bookplate  
(1-68)

**NATIONAL**

**A  
G  
R  
I  
C  
U  
L  
T  
U  
R  
A  
L**



**LIBRARY**



## INTRODUCTION

This handbook of plant tolerances to methyl bromide has been assembled from various published literature, unpublished reports, and other sources. This information is intended in part to be a supplement to the Plant Protection and Quarantine Treatment Manual.

It has been estimated that nearly 95 percent of the nursery stock and other plants being moved in commerce are tolerant to dosage schedules that will kill the insects or other pests involved. However, in a few genera, all species are apparently highly intolerant. In other genera, only a few species or varieties are known to be affected. Complaints of fumigation injury often may be attributed to other causes. The condition of the plant material at the time of treatment may be deteriorating as a result of high or low temperatures, improper packaging, delays in transit, and other factors, all of which effect survival of plant shipments. Much of the plant material reported herein was treated with the roots in soil as compared to soil-free imported plants received at an Inspection Station. The removal of the growing media from roots is in itself a great shock to plants. A few plants may be adversely affected by treatments on bare roots, but for most plants there is apparently little or no additional effect.

Plants in active growth are more subject to injury than are dormant plants. Plants in foliage, whether active or dormant, may lose some leaves, but often recover with time by new growth.

For the most part, the plant names used herein conform with present botanical nomenclature (Hortus III) except that scientific names are not italicized or underscored. Changes in specific names from original texts normally are not noted, but changes in generic names usually are shown. A question mark after a specific name indicates that it has not been located in literature to determine its validity.

### Guidelines and Abbreviations:

All dosages and temperatures are stated in the metric system.

Dosage rates are expressed as grams (g) per cubic meter of space. For practical fumigant dosage relationship:  
grams/cubic meter = milligrams/liter = ounces 1000 cubic feet.

U. S. DEPT. OF AGRICULTURE  
NATIONAL AGRICULTURAL LIBRARY

AUG 17 1978

For the sake of brevity, the schedules are abbreviated in the text: i.e. 32g/2 hr/26.7°C is equal to 32 grams per cubic meter for 2 hours at 26.7°C.

Unless otherwise stated all schedules are at normal atmospheric pressure (NAP).

Unless otherwise stated, vacuum is sustained and expressed in millimeters (mm) from NAP:  
Vacuum 660 mm is equivalent to 26 inches vacuum.  
Vacuum 380 mm is equivalent to 15 inches vacuum.

Abbreviation of JBC refers to the Japanese beetle control schedule of 40g/2½ hr/17.2°C (63°F) or above as reported in reference (101) and in other references as cited.

Numbers in parentheses refer to the references cited in the Bibliography at the end of the text. No reference number indicates - Unpublished literature.

United States Department of Agriculture  
Animal and Plant Health Inspection Service  
Plant Protection and Quarantine Programs  
Methods Development Laboratory  
Hoboken, New Jersey

1977



**Abelia****grandiflora**

Considered intolerant 32g/2 hr/26.7°-29.4°C (102)

Injured JBC schedule (20, 101) recovered (15)

Injured 44g/2½ hr/21.1°C; 38g/23.9°C and 32g/26.7°C (19)

**schumannii**

Injured JBC schedule (101)

**cv Edward Goucher (Gaucheri)**

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

Semidormant plants (winter months) tolerant 64g/2½ hr/21.1°C (38)

**Abies****alba, cephalonica, cilicica, fraseri, veitchii**

Tolerant JBC schedule (101)

**concolor**

Tolerant JBC schedule but 1 of 3 growers reported injury (101)

**Acacia****baileyana, decurrens, melanoxylon, verticillata**

Initial injury but soon recover 32g/2 hr/26.7°-29.4°C (81, 102)

**sp.**

In soil tolerant 64g/1½ hr/21.1°C/vacuum 660 mm (107)

**Acalypha****wilkesiana**

Tolerant 16g/16 hr/18.9°-21.1°C (52)

**sp.**

Unrooted cuttings injured 32g/2 hr/21.1°C

**Acampe****papillosa**

Greenhouse plants tolerant 32g/2 hr/16.7°C some older leaves lost (9)

**Acanthopanax****sieboldianus**

Tolerant JBC schedule (101)

**Acer****palmatum**

Tolerant JBC schedule (20) possible injury (15, 101)

Tolerant 48g/2 hr/21.1°C

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109, 111)

**platanoides atropurpureum**

Tolerant 48g/2 hr/21.1°C

**rubrum**

Some initial injury JBC schedule (101)

**sp.**

Tolerant 40g/2 hr/26.7°-29.4°C (102)

Achillea

millefolium, ptarmica, tomentosa

Tolerant JBC schedule (101)

Aconitum

carmichaelii, fischeri, napellus

Tolerant JBC schedule (101)

Actinidia

arguta

Tolerant JBC schedule (101)

chinensis

Tolerant 48g/2 hr/21.1°C

Ada

aurantiaca

2 greenhouse plants tolerant 32g/2 hr/21.1°C (9)

Adiantum

fulvum ?

Greenhouse plants slight injury 32g/2 hr/15.6°-20.6°C  
severe injury 48g

raddianum

Tolerant JBC schedule (15, 20, 101)

tenerum

Tolerant JBC schedule (20)

Greenhouse plants slight injury 32g/15.6°C-20.6°C,  
severe injury 40g

spp.

Not tolerant 32g/2 hr/26.7°-29.4°C (81, 102)

Aechmea

miniata

1 plant slight tip burn 32g/2 hr/25°C

Aeonium

glutinosum

2 plants active growth tolerant 32g/1½ hr/21.1°C (38)

Aerides

vandarum

Greenhouse plants tolerant 32g/2 hr/21.1°C (9)

Aesculus

carnea

Tolerant 32g/2 hr/21.1°C

Aethionema

cvs

Tolerant JBC schedule (101)



Agapanthus  
     africanus  
         Tolerant JBC schedule (101)

Agastache  
     rugosa, rupestris  
         Plants active growth tolerant 40g/1½ hr/21.1°C (38)

Agave  
     parviflora  
         Plants active growth tolerant 32g/1½ hr/21.1°C (38)  
     schottii  
         2 plants active growth tolerant 32g/2 hr/21.1°C (38)

Ageratum  
     sp.  
         Tolerant JBC schedule (101)  
         Plants and cuttings tolerant 32g/2 hr/21.1°C

Aglaonema  
     modestum  
         1 greenhouse plant tolerant JBC schedule (101)  
     simplex  
         Injured JBC schedule (101)  
     sp.  
         3 plants tolerant JBC schedule, slight burn on 1 (15)  
         Rooted cuttings tolerant 48g/2 hr/21.1°C. Slight injury  
             in vacuum 380 mm  
         Cuttings tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109)

Agrostemma  
     sp.  
         Tolerant JBC schedule (101)

Ajuga  
     genevensis, reptans  
         Tolerant JBC schedule (15, 20, 101, 109)

Akebia  
     quinata  
         Tolerant JBC schedule (101)

Albizia  
     thoreli  
         Plants active growth tolerant 40g/1½ hr/21.1°C (38)

Alcea  
     rosea (hollyhock)  
         cvs tolerant JBC schedule (101)

Allamanda

cathartica

Tolerant JBC schedule (101)

johnsoni?

Potted plants killed 16g/4 hr/29.4°C (112)

Allium

sativum (garlic)

Bulbs tolerant 40g/2 hr/26.7°-29.4°C (37, 79)

Bulbs tolerant 40g/2 hr/21.1°C/vacuum 380 mm (117)

schoenoprasum (chives)

Tolerant JBC schedule (101)

Alnus

sp.

Dormant plants tolerant 40g/1½ hr/21.1°C (38)

Aloe

andringitrensis, antandroi?, davyana, thorncroftii

Plants active growth tolerant 32g/2 hr/21.1°C (38)

brevifolia, depressa, campieri, grandidentata?, krapohlana, longibracteata?, pretoriensis, saponaria, schimperii, succotrina, supralaavis, tenuior, vaombe

1 plant each active growth tolerant 16g/2 hr/21.1°C (38)

humilis

Tolerant JBC schedule (15, 20)

rubrivilacea?

Plants active growth tolerant 32g/1½ hr/21.1°C

sp.

4 plants active growth tolerant 32g/2 hr/21.1°C (38)

1 plant active growth severe injury 32g/2 hr/21.1°C (38)

Alonsoa

acutifolia

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

Althaea (See Alcea, Hibiscus)

Alyssum

sp.

Tolerant JBC schedule (15, 20, 101, 109)

Amaryllis (See also Hippeastrum, Lycoris)

bulbs

Tolerant 80g/2 hr/23.3°C possibly tolerant 96g

Tolerant 40g/1½ hr/21.1°C/vacuum 660 mm

Tolerant 48g/1½ hr/21.1°C/vacuum 380 mm (109)

plants

Tolerant JBC schedule, some injury reported (101)



**Ampelopsis**

**aconitifolia**

2 plants tolerant JBC schedule (101)

**brevipedunculata**

Tolerant JBC schedule (101)

**Amsonia**

**sp.**

Tolerant JBC schedule (101)

**Anacharis (See Elodea)**

**Ananas**

**ananassoides**

2 plants active growth tolerant 16g/2 hr/21.1°C (38)

**comosus**

Tolerant 32g/2 hr/33.3°C (46)

Tolerant 40g/1½ hr/22.8°C

**Anchusa (See also Brunnera)**

**azurea, sp.**

Tolerant JBC schedule 101, 109)

**Anemone**

**hupehensis**

Dormant plants tolerant JBC schedule (15, 109)

**Angophora**

**costata**

Barerooted plants wilted and died 16g/1½ hr/21.1°C/  
vacii, 660 mm (107)

**Angraecum**

**eichlerianum**

Greenhouse plants tolerant 28g/1½ hr/21.1°C; 2 plants  
tolerant 32g/2 hr (9)

**gracilipes**

2 greenhouse plants tolerant 28g/1½ hr/21.1°C (9)

**scottianum**

1 greenhouse plant tolerant 32g/2 hr/21.1°C (9)

**Anguloa**

**sp.**

1 greenhouse plant tolerant 32g/2 hr/16.7°C (9)

**Anoetochilus**

**sp.**

Considered by grower to be intolerant

**Anthemis**

**sp. (possibly tinctoria)**

Tolerant JBC schedule (101)



## **Anthurium**

**bogatense, macrolobum**

1 plant each tolerant 24g/2 hr/26.7°C

**clarinervium**

Injured 40g/2 hr/27.2°C/vacuum 380 mm, plants retarded

**coseaceum?, robustum**

1 plant each tolerant 32g/2 hr/26.7°C

**pentaphyllum**

1 plant tolerant 20g/2 hr/29.4°C

**scherzeranum**

Tolerant 32g/2 hr/21.1°C

**spathiphyllum**

Injured JBC schedule (101)

**spp.**

Tolerant 28 and 48g/2 hr/22.2°C

Initial injury but should recover 32g/2 hr/21.1°C (57, 102)

## **Aphelandra**

**sp.**

1 cutting slight injury but recovered 32g/2 hr/21.1°C

## **Aponogeton**

**madagascariensis**

Injured 12g/2 hr/21.1°C not tolerant to higher schedules

**ulvaceus, undulatus**

Tolerant 32g/2 hr/21.1°C

## **Aquilegia**

**sp.**

Tolerant JBC schedule (15, 20, 101, 109)

## **Arabis**

**alpina**

Tolerant JBC schedule (15, 20, 101, 109)

## **Araucaria**

**heterophylla**

Tolerant JBC schedule (15, 20, 101)

Unrooted cuttings tolerant 40g/1½ hr/21.1°C

Active plants tolerant 32g/2 hr/21.1°C/dormant 2½ hr (57)

Cuttings tip burn (10% dead tips) 48g/2 hr/21.1°C

## **Archontophoenix**

**alexandrae**

In soil severely burnt but recovered 40g/1½ hr/21.1°C/  
vacuum 380 mm

**Arctostaphylos**

uva-ursi

Tolerant JBC schedule (15, 20)

**Areca** (See Chrysalidocarpus)

**Areneria**

montana, verna

3 plants each tolerant JBC schedule (15, 101)

montana

Tolerant JBC schedule (20, 109)

**Argania**

spinosa

1 plant active growth tolerant 32g/1½ hr/21.1°C (38)

**Aristea**

sp.

Barerooted plants wilted and died 16g/1½ hr/21.1°C/  
vacuum 660 mm (107)

**Aristolochia**

spp. (2)

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

**Armeria**

maritima

Tolerant JBC schedule (15, 20, 109)

spp.

Tolerant JBC schedule (101)

**Aronia**

Arbutifolia

Tolerant JBC schedule (15, 20, 109)

melanocarpa

Tolerant JBC schedule (101)

**Artemisia**

dracunculus, sp.

Tolerant JBC schedule (15, 20, 101, 109)

**Asarina**

erubescens (Maurandia e.)

Plants active growth tolerant 32 and 40g/1½ hr/21.1°C (38)

*Ascotainia*

*viridifusca*

5 greenhouse plants tolerant 32g/2 hr/16.7°C (9)

*Asparagus*

*officinalis*

Tolerant JBC schedule (101)

Roots tolerant 56g/2½ hr/17.2°C, possibly near limit

*setaceus (plumosus)*

Tolerant JBC schedule (15, 20, 101)

*Aspasia*

*epidendroides*

Greenhouse plants tolerant 32g/2 hr/21.1°C (9)

1 greenhouse plant tolerant 28g/1½ hr/26.7°C (9)

*Asperula (See Galium)*

*Aspidistra*

*elatio*

Potted plants tolerant 16g/4 hr/29.4°C (112)

In soil tolerant 8g/4 hr/30°C (41)

Tolerant 40g/2 hr/26.7°-29.4°C (102)

Barerooted plants tolerant 48g/2 hr/21.1°C/NAP and  
vacuum 380 mm

Injured JBC schedule (15, 20)

*Asplenium*

*nidus*

Tolerant JBC schedule (15, 20)

Considered intolerant 32g/2 hr/26.7°-29.4°C (81, 102)

Small greenhouse plants tolerant 40g/2 hr/15.6°-20.6°C

*Aster*

*fruticosus - See Felicia*

*novibelgi*

Tolerant JBC schedule (15, 20, 101)

*cvs*

Some injury JBC schedule: Wonder of Stafa, Nancy Niobe,  
Ronald, dumosa, Alderman Jolkes of 39 cvs tested (101)

*sp.*

Tolerant 32g/2 hr/21.1°C

*Astilbe*

*rosea, spp.*

Tolerant JBC schedule (15, 20, 101, 109)



Athyrium (See also Diplazium)

cvs.

Small greenhouse plants not tolerant 32g/2 hr/10°-15°C

Attalea

crassispatha

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

Aubrieta

sp.

Tolerant JBC schedule (101)

Aucuba

japonica

Tolerant JBC schedule (15, 20, 101). Note: 1 grower reported foliage will burn with temperatures above 21.1°C

Tolerant 44g/2½ hr/21.1°C; 38g/23.9°C and 32g/26.7°C (19)

Aurinia

saxatilis

Tolerant JBC schedule (101)

Azalea (See also Rhododendron)

dormant deciduous

Generally tolerant 48g/2 hr/21.1°C

Evergreen species and varieties

cvs Salmon Queen, Coral Bells not tolerant (15, 16, 18, 81)  
101, 102, etc)

cv Christmas Cheer, doubtfully tolerant (63)

cvs of Indica type somewhat intolerant, may be injured

cvs in active growth may be injured 32g/2 hr/21.1°C but will usually recover

sp. and varieties

45 varieties (cuttings) tolerant 32g/1 hr/26.7°C, some loss 1½ hr (18)

Rooted cuttings in soil tolerant 32g/1¼ hr/32.2°C and 2¼ hr/26.7°C (18)

Plants balled and burlapped tolerant 32g/1½ hr/21.1°C/vacuum 620 mm to 96g at 10°C (63)

Plants in winter tolerant 40g/1,2,3 hr/21.1°C/NAP or vacuum (43)

Tolerant JBC schedule (15, 101)

Azara

microphylla

Initial injury but plants recover 32g/2 hr/26.7°-29.4°C (81, 102)

*Babiana*  
     *mucronata*  
         5 plants active growth tolerant 32g/1½ hr/21.1°C (38)

*Bactris*  
     *sp.*  
         Plants active growth tolerant 32 and 40g/1½ hr/21.1°C (38)

*Bamboo*  
     *spp.*  
         Recommended schedule 40g/2 hr/26.7°-29.4°C (102)

*Baptisia*  
     *australis*  
         Tolerant JBC schedule (101)

*Bauhinia*  
     *godefroyi, saigonensis*  
         Plants active growth tolerant 32g/1½ hr/21.1°C (38)  
     *sp.*  
         Plants active growth tolerant 40g/1½ hr/21.1°C (38)

*Begonia*  
     *foliosa*  
         Potted plants dropped leaves but recovered 40g/1½ hr/  
         21.1°C/vacuum 700 mm  
     *incarnata, rex*  
         Blossoms dropped, no injury to foliage 40g/1½ hr/21.1°C/  
         vacuum 685 mm  
     *rex*  
         Tolerant JBC schedule (20)  
     *semperflorens*  
         Considered intolerant 32g/2 hr/26.7°-29.4°C (81, 102)  
         Tolerant 16g/16 hr/18.9°-21.1°C (52)  
     *tuberhybrida* (horticultural tuberous forms)  
         Plants considered intolerant (81, 102)  
     *tubers*  
         Tolerant 48g/2 hr/21.1°C  
     *winter flowering*  
         Tolerant 20g/6 hr/15-17°C (69)  
     *cvs*  
         Tolerant JBC schedule (15, 101)

*Bellis*  
     *perennis*  
         Tolerant JBC schedule (101)

*Beloperone*   (See *Justicia*)

## Berberis

*atrocarpa*, *sargentiana*, *thunbergii*

Tolerant 44g/2½ hr/21.1°C; 38g/23.9°C and 32g/26.7°C (19)

*gagnepainii*, *tricanthophora*

Tolerant JBC schedule (15, 20, 109)

*julianae*

Tolerant JBC schedule possible initial injury (15, 20, 101)

*thunbergii*, *verruculosa*

Tolerant JBC schedule (15, 20, 101)

*thunbergii*

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm initial retardation (109, 111)

*verruculosa*

Tolerant 64g/1½ hr/vacuum 380 mm (109, 111)

## Bergenia

*pacifica* ?

1 plant active growth tolerant 32g/2 hr/21.1°C (38)

*purpurascens*, sp.

Tolerant 40g/1½ hr/21.1°C (38)

sp.

6 plants bareroot tolerant 8g/1½ hr/21.1°C/vacuum 660 mm (107)

6 plants - 3 survived 64g/1½ hr/21.1°C/vacuum 660 mm (107)

## Betula

*alleghaniensis*

Tolerant JBC schedule (101)

*atrata*, *utilis*, spp. (5)

Tolerant 32g/2 hr/21.1°C (38)

## Bifrenaria

*aurantiaca*

1 greenhouse plant tolerant 28g/1½ hr/21.1°C (9)

*harrisoniae*

Greenhouse plants tolerant 32g/2 hr/16.7°C (9)

## Bignonia (See Campsis)

## Billbergia

*alberti* Hort.

1 plant died JBC schedule (15)

*egmea* ?

Tolerant 32g/2 hr/21.1°C

*nutans*

1 plant died, 1 injured JBC schedule (15, 20, 101)

*windii*

1 plant tolerant 32g/2 hr/21.1°C



**Blechnum**

**gibbum**

Small greenhouse plants tolerant 48g/2 hr/10°-15°C but  
not 40g/2 hr at 15.6°-20.6°C

**Boehmeria**

**nivea**

Tolerant 64g/1½ hr/21.1°C/NAP some retardation (106); or  
vacuum 380 mm (109)

**Boltonia**

**asteroides**

7 plants tolerant JBC schedule (101)

**Bouvardia**

**longiflora**

Tolerant JBC schedule (15, 20, 101)

**Brassavola**

**digbyana**

Greenhouse plants tolerant 32g/2 hr/26.1°C (9)

**Brassia**

**caudata, maculata**

Tolerant 48g/2 hr/21.1°C/vacuum 380 mm

**kieliana, longissima, verrucosa**

1-5 greenhouse plants tolerant 28g/2 hr/21.1°C (9)

**longissima, verrucosa**

1 greenhouse plant each tolerant 32g/2 hr/21.1°C (9)

**nodosa**

2 greenhouse plants tolerant 28g/1½ hr/26.7°C (9)

**Brassica**

**oleracea (cabbage)**

Plants tolerant 32g/3 hr/15°C (10)

**rapa (turnip)**

Plants tolerant 16g/16 hr/16.9°-21.1°C (52)

**Bromelia**

**rhodesiana ?**

Tolerant 40g/2 hr/21.1°C

**Brunnera**

**macrophylla**

Tolerant JBC schedule (15, 20, 101)

**Bryophyllum (See Kalenchoe)**

## Buddleia

*asiatica*, *davidii*, *farquharii*

Tolerant JBC schedule (20, 101)

sp.

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

Tolerant JBC schedule (15, 109)

## Bulbophyllum

*barbigerum*, *careyanum*, *deari*, *densiflorum?*, *falcatum*,  
*guttulatum*, *leopardinum*, *lindleyanum*, *lobbi*, *medusae*,  
*picturatum*, *refractum*

Greenhouse plants tolerant 32g/2 hr/16.7°C (9)

*caricinum?*, *gibbosum?*, *virescens*

Greenhouse plants tolerant 32g/23.9°C (9)

*guttulatum*, sp.

Greenhouse plants tolerant 32g/2 hr/29.4°C (9)

*odoratissimum*

1 greenhouse plant tolerant 28g/2 hr/23.9°C (9)

## Burlingtonia

*fragrans*

2 greenhouse plants tolerant 24g/2 hr/25°C (9)

## Buxus

*harlandii*, *microphylla*, *sempervirens*

Tolerant 44g/2½ hr/21/1°C, 38g/23.9°C and 32g/26.7°C (19)

*microphylla japonica*, *sempervirens*

Tolerant JBC schedule (15, 20, 101)

*sempervirens*

Tolerant 16g/16 hr/16.9°-21.1°C (52)

*sempervirens arborescens*

Tolerant 48g/1½ hr/21.1°C/vacuum 380 mm (109); root tips  
injured (111); injury 64g (111)

*sempervirens salicifolia*

Tolerant 40g/1½ hr/21.1°C/vacuum 380 mm (109); root tip  
injured (111); injury 48g (111)

spp.

Tolerant 40g/2 hr/26.7°-29.4°C (102)

In soil tolerant 48g/1½ hr/21.1°C to 96g/1½ hr/4.4°C/  
vacuum 620 mm (63)

Tolerant 40g/1½ hr/vacuum 380 mm (58)

Not tolerant 40g/5 hr/15°C (77)

Cabomba

sp.

Tolerant 32g/2 hr/21.1°C

Cacti (See specific genera)

Caladium

bicolor

Plants and tubers tolerant JBC schedule (15, 20, 101)

Plants tolerant 48g/2 hr/21.1°C but not vacuum 380 mm

Tubers tolerant 56g/2 hr/21.1°C/vacuum 380 mm 23.9°C

Calanthe

discolor

Dormant roots tolerant 40g/2½ hr/15.6°C

sp.

Greenhouse plants tolerant 28g/1½ hr/21.7°-29.4°C (9)

Calathea

picturata

Some injury JBC schedule (15, 20)

Initial injury but recover 40g/2 hr/26.7°-29.4°C (81, 102)

Calceolaria

crenatiflora

Tolerant JBC schedule (15, 20, 101)

tripartita

3 plants active growth tolerant 40g/1½ hr/21.1°C (38)

Calla (See Zantedeschia)

Callistemon

sp.

Tolerant 32g/2½ hr/21.1°C; 38g/23.9°C and 32g/26.7°C (19)

Calluna

vulgaris

Tolerant JBC schedule (15, 20, 101, 109)

Calycanthus

floridus

Tolerant JBC schedule (15, 20, 101, 109)

Camellia

cuspidata, japonica

1-2 plants active growth tolerant 32g/1½ hr/21.1°C (38)



## Camellia (continued)

### japonica, sasanqua, spp.

Not affected by bare rooting or fumigation, non dormant plants tolerant 32g/2 hr/21.1°C; dormant 40g/2 hr/21.1°C (37)

Tolerant JBC schedule (15, 101)

Tolerant 40g/1½ hr/21.1°C/vacuum 660 mm (111)

In soil tolerant 32g/2 hr/26.7°C; 16g/3 hr and 8g/5 hr/26.7°C (16)

Tolerant 48g/2 hr/21.1°C (24, 25)

Tolerant 32g/2½ hr/26.7°C; 3½ hr/21.1°C (17)

Cuttings tolerant 32g/1½ hr/26.7°C; slight loss 2 hr; severe loss 2½ hr/26.7°C (16)

Cuttings in soil tolerant 32g/1¼ hr/32.2°C and 2¼ hr/26.7°C (18)

Cuttings tolerant 32g/1½ hr/26.7°C except few cvs serious loss (16)

### sinensis

Plants killed or severe injury (32)

Non dormant plants killed or severe injury 32g/2 hr/21.1°C; dormant 40g/2 hr/21.1°C (57)

Not tolerant 44g/2½ hr/21.1°C; 38g/23.9°C or 32g/26.7°C (19)

### sp.

Tolerant 48g/1½ hr/21.1°C/vacuum 380 mm (109)

## Campanula

carpatica, elatines, glomerata, isophylla, lactiflora, medium, persicicola, pyramidalis, rotundifolia, trachelium

Tolerant JBC schedule (15, 20, 101, 109)

## Campsis

grandiflora (Bignona G.)

Tolerant JBC schedule (15, 20, 101, 109)

## Canavalia

cathartica (moanaloa)

Cut flowers tolerant 32g/2 hr/21.1°C

## Canna

### sp.

Tolerant JBC schedule (101)

## Capsicum

### annuum

Plants initial injury but soon recover 40g/2 hr/26.7°-29.4°C (81, 102)

### sp.

1 greenhouse plant killed JBC schedule (15)

## Caralluma

### lutea

6 plants active growth tolerant 32g/1½ hr/21.1°C (38)

Dormant plants tolerant 48g/1½ hr/21.1°C/vacuum 380 mm (109, 110)

- Cardiospermum*  
*intergerrinum* ?  
 2 plants each active growth severe burning and defoliation  
 32 and 36g/1½ hr/21.1°C (38)
- Carmichaelia*  
*grandiflora*, *odorata*  
 Plants active growth tolerant 40g/1½ hr/21.1°C (38)
- Carpobrotus*  
*acinaciformis*  
 Plants active growth tolerant 40g/1½ hr/21.1°C (38)
- Caryopteris*  
*incana*  
 Dormant plants tolerant JBC schedule (15, 20, 101, 109)
- Castanea*  
*mollissima*  
 Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109, 111)
- Catasetum*  
*barbatum*, sp.  
 Greenhouse plants tolerant 28g/1½ hr/26.7°-29.4°C (9)  
*fimbriatum*, *hookerii*, *russellianum*  
 Greenhouse plants tolerant 32g/2 hr/16.7°C (9)  
*talulore*  
 Greenhouse plants tolerant 28g/1½ hr/21.1°C (9)
- Cattleya*  
 spp.  
 Tolerant 48g/2 hr/21.1°C (51, 108) vacuum 380 mm (51)  
 Greenhouse plants tolerant 32g/2 hr/17.8°-29.9°C (9)
- Ceanothus*  
 sp.  
 3 plants active growth tolerant 32g/2 hr/21.1°C (38)
- Cedrus*  
*atlantica*  
 Tolerant JBC schedule (15, 20, 101, 109)  
*deodara*  
 Tolerant 44g/2½ hr/21.1°C; 38g/23.7°C and 32g/26.7°C (19)
- Celastrus*  
*rosthornianus*  
 Plants active growth tolerant 32g/2 hr/21.1°C (38)  
*scandens*  
 Tolerant JBC schedule (101)

*Celosia*  
    *cristata*  
        Considered intolerant (81, 102)

*Celtis*  
    *koraiensis*  
        Dormant plants tolerant 32g/2 hr/21.1°C (38)

*Centaurea*  
    *macrocephala*  
        Injury reported JBC schedule (101)  
    *montana*  
        Tolerant JBC schedule (101)

*Centaureium*  
    *erythraea*  
        Plants active growth tolerant 32g/1½ hr/21.1°C (38)

*Cephalocereus*  
    *sp.*  
        Cuttings tolerant 32g/2 hr/21.1°C/vacuum 380 mm

*Cerastium*  
    *bierbersteinii*  
        Dormant plants tolerant JBC schedule (15, 20, 109)  
    *tomentosum*  
        6 plants tolerant JBC schedule (101)

*Ceratonia*  
    *siliqua*  
        Cuttings tolerant 24/2 hr/21.1°C

*Ceratozamia*  
    *sp.*  
        Healthy plants tolerant 48g/2 hr/21.1°C/vacuum 660 mm,  
        damaged plants rotted.

*Cercis*  
    *canadensis*  
        Plants tolerant JBC schedule (101)

*Cereus*  
    *peruvianus*  
        Plants tolerant JBC schedule (15, 20, 101)

*Ceratostigma*  
    *plumbaginoides*  
        Plants tolerant JBC schedule (101)



*Cestrum*

sp.

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

*Chaenomeles*

*speciosa*

Tolerant JBC schedule (15, 20, 101, 109)

In soil tolerant 64g/4 hr/21.1°C and 56g/5 hr/21.1°C (39)

Tolerant 44g/2½ hr/21.1°C; 38g/23.9°C and 32g/26.7°C (19)

*Chamaecyparis*

*lawsoniana*

Initial injury but soon recover 40g/2 hr/26.7°-29.4°C (81)

Unrooted cuttings killed or severely injured 32g/2 hr (57)

*lawsoniana* cvs *allumi*, *erecta viridis*, *nootkatensis*

Considered intolerant (81, 102)

*obtusa*, *pisifera*

Dormant plants in general tolerant 32g/2 hr/21.1°C and

JBC schedule although tip burn may occur (15, 20, 40, 101)

*Chamaedorea*

*elegans* (*Neanthe bella*), spp.

Greenhouse plants tolerant 40g/1½ hr/21.1°C/vacuum 380 mm (109)

Plants active growth tolerant 40g/2 hr/21.1°C (38)

In pots tolerant 48g/1½ hr/21.1°C/vacuum 380 mm some leaf  
burn (38, 109)

*Cheiranthus*

sp.

Tolerant JBC schedule although some injury may occur (101)

*Chionanthus*

*virginicus*

Tolerant JBC schedule (101)

*Chionodoxa*

sp.

Bulbs tolerant 48g/2 hr/21.1°C

*Chrysalidocarpus*

*lutescens*

1 greenhouse plant tolerant JBC schedule (15, 20)

Tolerant 16g/4 hr/29.4°C (112)

sp.

Tolerant 40g/2 hr/21.1°C (44)

Potted plants considered intolerant 32g/2 hr/26.7°-  
29.4°C (81, 102)

*Chrysanthemum*

*articum*, *coccineum*, *frutescens*, *morifolium*

2 plants each tolerant JBC schedule (15, 20)

*maximum*

Some cvs killed or seriously injured by fumigation (57)

*morifolium*

Not affected by barerooting or fumigation, non-dormant plants tolerant 32g/2 hr/21.1°C; dormant 40g/2 hr/21.1°C (57)

*superbum* (Shasta daisy)

Generally tolerant JBC schedule but some injury reported to some cvs (101)

*spp.*

Dormant roots in general tolerant, but some cvs may be severely injured

Non-dormant plants, cut flowers, cuttings, usually are intolerant but some cvs are not injured

Considered intolerant (81)

Little injury to most cultivars tested 22g/2 hr/18°C (28)

*Chrysoboltonia* (See *Chrysanthemum*)

*Chysis*

*sp.*

Greenhouse plants tolerant 28g/1½ hr/21.1°-26.7°C (9)

*Cibotium*

*scheidei*, *sp.*

Injured JBC schedule, especially oldest leaves (15, 20, 101)

*Cimicifuga*

*foetida*, *racemosa*, *sp.*

Tolerant JBC schedule (101)

Tolerant 48g/2½ hr/21.1°C

*Cinchona*

*officinalis*

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

*spp.* (4)

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

Greenhouse plants tolerant 48g/1½ hr/21.1°C/vacuum 380 mm (109)

*Cineraria* (See *Senecio*)

*Cirrhopetalum* (See *Bulbophyllum*)

## Cissus

*rhombifolia*, *striata*

Tolerant JBC schedule (15, 20, 101)

sp.

Initial injury but soon recover 40g/2 hr/26.7°-29.4°C  
(81, 102)

## Citrus

*limon*, *sinensis*

Bare root or in soil tolerant 30g/2 hr/21.1°C; leaf drop  
with 60g but recover (47)

*limonia*, *sinensis*

Tolerant JBC schedule (15, 20, 101)

*reticulata*

Potted plants tolerant 83.4g/2 hr/33.3°-36.1°C;  
97g/22.2°-26°C, with some injury at higher temperatures;  
plants injured 110.9g/15.6°-20.6°C (71)

spp. (2)

3 plants active growth tolerant 32g/2½ hr/21.1°C (38)

sp.

Balled plants 40g/2 hr/26.7°-29.4°C recommended (102)  
Tolerant 40g/2 hr/26.7°-29.4°C (3)

## Clematis

*jackmanii*, sp.

Tolerant JBC schedule (15, 20, 101, 109)

Plants dormant or active tolerant 40g/2 hr/21.1°C

## Clerodendrum

*myricoides*

Some leaf drop and tip burn, 32g/1½ hr/21.1°C/vacuum  
660 mm; all tips killed, 50% leaf drop plant recover  
48g/1½ hr/21.1°C/vacuum 660 mm

Almost all leaves drop, all tips dead plants recover  
but weak 64g/1½ hr/21.1°C/vacuum 660 mm (107)

*speciosissimum*

Initial injury but recover 40g/2 hr/26.7°-29.4°C (81, 102)

## Clethra

*alnifolia*

Tolerant JBC schedule (101)

## Cleyera

*japonica*

Tolerant 44g/2½ hr/21.1°C; 38g/23.9°C and 32g/26.7°C (19)

## Clivia

*miniata*, sp.

Greenhouse plants tolerant JBC schedule (15, 20)

*Cocos weddelliana* (See *Microcoelum*)



**Codiaeum**

**variegatum, sp.**

1 greenhouse plant tolerant JBC schedule (15, 20)  
Potted plants tolerant 16g/4 hr/29.4°C (41, 110)  
Tolerant 32g/2 hr; limit near 40g/2 hr/26.7°-29.4°C

**Coelogyne**

**spp.**

Greenhouse plants tolerant 32g/2 hr/21.1°C (9)

**Colchicum**

**sp.**

Bulbs tolerant 48g/2 hr/21.1°C

**Coleus**

**blumei**

Tolerant 16g/16 hr/16.9°-21.1°C (52)  
Considered intolerant 32g/2 hr/26.7°-29.4°C (81, 102)

**sp.**

1 plant injured JBC schedule (101)  
Potted plant tolerant 40g/1½ hr/21.1°C/vacuum 660 mm  
20°C (44, 45)  
2 plants active growth tolerant 32g/2 hr/21.1°C (38)

**Colocasia**

**esculenta**

Tubers tolerant 64g/4 hr/21.1°C, possible injury  
64g/4 hr/21.1°C/vacuum 660 mm

**Convallaria**

**majalis**

Tolerant JBC schedule (15, 20, 101, 109)  
Dormant pips maximum tolerance near 48g/4 hr/18.3°C  
tolerant 68g/2 hr/21.1°C (53)

**Convolvulus**

**sp.**

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

**Cordyline**

**indivisa, terminalis**

Few greenhouse plants tolerant JBC schedule, some leaf  
loss 1 plant (15, 20)

**terminalis**

In soil tolerant 16g/4 hr/38°C (41)

**Coreopsis**

**auriculata, lanceolata, sp.**

Tolerant JBC schedule (101)

*Coriaria*

sp.

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

*Cornus*

*alba*, *florida*, *racemosa*, *sericea*

Tolerant JBC schedule (15, 101, 109)

*kousa*

2 plants active growth tolerant 32g/2 hr/21.1°C (38)

*Coronilla*

*cappadocica*

3 plants tolerant JBC schedule (101)

*Coryanthes*

*bungerothii*

1 greenhouse plant tolerant 32g/2 hr/16.7°C (9)

*Cotoneaster*

*adpressus*, *apiculatus*, *dammeri*, *dielsianus*, *divaricatus*,  
*franchetii*, *horizontalis*, *lucida*, *microphylla*, *pannosa*,  
*racemosa*, *rotundifolius*, *salicifolius*, *simonsii*

Few plants each tolerant JBC schedule (15, 20, 101, 109)

*franchetii*

Injured 44g/2½ hr; 38g/23.9°C and 32g/26.7°C (19)

Tolerant 40g/1½ hr/21.1°C possible injury or cultural  
conditions 64g/1½ hr/21.1°C/vacuum 380 mm (109, 111)

*uniflorus*

1 plant active growth tolerant 32g/2 hr/21.1°C (38)

spp. (3)

1 plant each active growth tolerant 32g/1½ hr/21.1°C (38)

*Cotyledon*

sp.

Plants active growth tolerant 32g/2 hr/21.1°C but tips  
of mature leaves burned (38)

*Crassula*

*arborescens*

Greenhouse plants drop leaves but recover JBC schedule (15)

Tolerant JBC schedule some injury reported (20, 101)

Potted plants tolerant 16g/4 hr/29.4°C (112)

Initial injury but recover 40g/2 hr/26.7°-29.4°C (102)

*corymbosa*

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109)

*multicava*

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

*perfoliata*

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

spp.

Initial injury but soon recover (81)

- Crataegus  
     laevigata  
         Tolerant JBC schedule (101)  
     sp.  
         Dormant plants tolerant 32g/2 hr/21.1°C (38)
- Crocus  
     sp.  
         Bulbs tolerant 48g/2 hr/21.1°C some injury 3 hr (14)
- Cryptanthus  
     acaulis, zonatus  
         1 greenhouse plant each tolerant JBC schedule (15, 20)
- Cryptocoryne  
     beckettii  
         Tolerant 32g/2 hr/21.1°C severe injury 48g  
     sp.  
         Plants injured or killed 28g/2 hr/21.1°C
- Cryptomeria  
     japonica  
         Tolerant JBC schedule (101)
- Cucumis  
     sativus  
         Greenhouse plants tolerant 16g/16 hr/16.9°-21.1°C (52)
- Cunninghamia  
     lanceolata  
         Tolerant 44g/2½ hr/21.1°C; 38g/23.7°C and 32g/26.7°C (19)
- Cuphea  
     hyssopifolia  
         Plants considered intolerant (81, 102)
- Cupressus  
     arizonica, macrocarpa  
         Initial injury but soon recover 40g/2 hr/26.7°-29.4°C  
             (81, 102)  
     sempervirens  
         Considered intolerant (81, 102)  
     cv's  
         Tolerant JBC schedule (101)
- Cycas  
     revoluta  
         Offsets tolerant 48g/2 hr/21.1°C/vacuum 380 mm



Cyclamen

hederifolium

Tubers tolerant 48g/2 hr/21.1°C/vacuum 660 mm

persicum

Tolerant JBC schedule (15, 20, 101)

sp.

Tolerant 40g/1½ hr/21.1°C/vacuum 660 mm (44)

Plants in flower tolerant 32g/2 hr/21.1°C (59)

Tolerant 16g/16 hr/16.9°-21.1°C (52)

Recommended schedule 32g/2 hr/26.7°-29.4°C some  
initial injury (102)

Greenhouse plants tolerant 64g/1½ hr/21.1°C/vacuum  
380 mm (109)

Cydonia (See also Chaenomeles)

oblonga (probably)

Tolerant 40g/6 hr/21.1°C and 60g/4 hr/15°C (78)

Tolerant 54g/4 hr/18.3°C (109)

Cymbidium

spp.

Greenhouse plants tolerant 32g/2 hr/21.1°-28.4°C some  
older leaves lost (9)

Greenhouse plants tolerant 32g/2 hr/15.°-29.4°C some  
older leaves lost (9)

Cynanchum

spp. (2)

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

Cynara

scolymus

Off-shoots delayed injury 16g/2 hr/21.1°C/initial  
vacuum (36)

Cypera

herberti

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

Cyperus

alternifolius

Tolerant JBC schedule (15, 20)

Cypripedium

speciosum

3 dormant roots tolerant 40g/2½ hr/15.6°C

spp.

Greenhouse plants tolerant 28g/2 hr/21.1°-26.7°C, few  
plants also tolerant 32g; occasional injury reported  
to some cvs (9)

Tolerant 32g/2 hr/21.1°C

Tolerant 24g/2 hr/21.1°C severely injured 40g/2 hr both  
at 26.7°C (60)

Cut flowers tolerant 32g/2 hr/21.1°C

Cyrtomium

falcatum

Greenhouse plants tolerant JBC schedule (15, 20)

Small greenhouse plants tolerant 32g/2 hr/15.6°-

20.6°C but not tolerant 48g/2 hr/10°-20.6°C

Cytisus

canariensis

Tolerant JBC schedule (15, 20)

racemosus

Initial injury but recover 40g/2 hr/26.7°-29.4°C (81, 102)

scoparius

Tolerant JBC schedule (109)

*Daboecia*  
*cantabrica*  
 2 plants tolerant JBC schedule (101)

*Dahlia*  
 spp.  
 Tubers tolerant 48g/2 hr/21.1°C  
 Tubers not tolerant 64g/4 hr/21.1°C/vacuum 700 mm

*Daphne*  
*burkwoodii*  
 Injured 36g/2 hr/18.3°C  
*cneorum*  
 Tolerant JBC schedule, possible initial injury (101)  
*genkwa*, *mezereum*, *odora*, sp.  
 Tolerant JBC schedule (15, 20, 101)

*Daucus*  
*carota* (carrot)  
 Roots not tolerant 32g/2 hr/21.1°C

*Davallia*  
*mariesii* or *trichomanoides*  
 Tolerant 32g/2 hr/26.1°C  
*fejeensis*  
 Tolerant JBC schedule (15, 20)  
*solida*  
 1 plant tolerant JBC schedule (15)

*Davidia*  
*involucrata*  
 Tolerant 32g/2 hr/21.1°C (38)  
 Tolerant JBC schedule (101)

*Delphinium*  
 spp.  
 Dormant plants and roots tolerant JBC schedule (15, 20, 101, 109)  
 A few varieties may be injured if non-dormant (15, 101)

*Dendrobium*  
*aggregatum majus*  
 Greenhouse plants tolerant 24 and 28g/2 hr/21.1°-29.4°C (9)  
 spp.  
 Greenhouse plants tolerant 32g/2 hr/16.7°C (9)

*Dendrochilum*  
*glumaceum*, *picturatum*  
 Greenhouse plants tolerant 32g/2 hr/16.7°C (9)



*Dennstaedtia*

*bipinnata*

Tolerant JBC schedule (20)

*cicutaria*

1 greenhouse plant tolerant JBC schedule (15)

*Derris*

*elliptica, malaccensis*

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

*Desmodium*

*gyroides?*

1 plant active growth tolerant 32g/1½ hr/21.1°C (38)

*tiliaefolium*

Plants active growth tolerant 32g/2 hr/21.1°C; slight injury 2½ hr/21.1°C (38)

Plants active growth tolerant 36g/1½ hr/21.1°C (38)

*Deutzia*

*gracilis, lemoinei, scabra*

Tolerant JBC schedule (15, 20, 101, 109)

*pilosa?, spp.*

Dormant plants tolerant 32g/2 hr/21.1°C; 36g/1½ hr/21.1°C (38)

*Dianthus*

*barbatus*

Tolerant JBC schedule (15, 20, 101, 109)

*caryophyllus* (carnation)

Cuttings tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109)

Tolerant 16g/16 hr/16.9°-21.1°C (52)

In flats tolerant 32g/2 hr/26.7°-29.4°C (23)

Tolerant JBC schedule (101)

Some cvs injured 50-60g/2 hr/16°C/vacuum 500-600 mm (66)

*spp.*

38 spp. and cvs tolerant JBC schedule (101)

*cut flowers*

Tolerant 40g/1½ hr/21.1°C or 30g/2 hr/21.1°C in vacuum (5)

Some flowers burned 32g/1½ hr/30°-31.1°C; no injury 28g (34)

*Dicentra*

*eximia, spectabilis, sp.*

Tolerant JBC schedule (15, 20, 101, 109)

*Dictamnus*

*albus*

Tolerant JBC schedule (101)

*Didymochlaena*

sp.

Small greenhouse plants tolerant 32g/2 hr/10°-15°C

*Dieffenbachia*

*maculata*

Tolerant JBC schedule, possible initial injury (15, 20, 101)

Tip cuttings tolerant 32g/2 hr/21.1°C/NAP and vacuum 660 mm;

48g/1½ hr/21.1°C/vacuum 380 mm

Tolerance limits near 40g/2 hr/26.7°-29.4°C (102)

sp.

Potted plants some injury but recover 16g/4 hr/29.4°C (112)

*Diervilla* (See *Weigelia*)

*Digitalis*

*dubia*, *purpurea*, sp.

Tolerant JBC schedule (101)

*Dioon*

*edule*

Tolerant 48g/2 hr/21.1°C/vacuum 660 mm

*Diospyros*

sp.

1 plant active growth tolerant 32g/2 hr/21.1°C (38)

4 plants dormant tolerant 32g/1½ hr/21.1°C (38)

*Diplazium* (See also *Athyrium*)

*silvaticum*?

Greenhouse plants tolerant 48g/2 hr/10°-15°C and

32g/2 hr/15.6°-20.6°C

*Doronicum*

*cordatum*, *clusii*, *plantagineum*, sp.

Tolerant JBC schedule (101)

*Draba*

*bruniifolia*

3 plants tolerant JBC schedule (101)

*Dracaena* (See also *Cordyline*)

*deremensis* (*warneckii*)

Potted plants killed 16g/4 hr/29.4°C (112)

Reported killed 24g/2 hr/21.1°C

*fragrans*

Canes tolerant 24g/2 hr/28.3°-30.6°C and

32g/2 hr/21.1°C

Plants tolerant JBC schedule (15)

Potted plants tolerant 16g/4 hr/29.4°C (41)

*Dracaena* (See also *Cordyline*) (Continued)

*surculosa* (*godseffiana*)

Tolerant JBC schedule (15, 101)

sp.

Tolerance limits near 32g/2 hr/26.7°-29.4°C some injury  
expected 40g/2 hr/26.7°C and 48g/2 hr/21.1°C (102)

Tolerant 48g/2 hr/15°-20°C/vacuum 610 mm (67)

*Drimiopsis*

sp.

Active plants tolerant 32g/1½ hr/21.1°C (38)

*Duranta*

*repens*

Tolerant but with some leaf drop 32g/1½ hr/21.1°C/  
vacuum 660 mm, increased leaf drop 48g; 1 of 10  
plants killed 64g (107)

*Dyckia*

*frigida*

Plants active growth tolerant 32g/1½ hr/21.1°C (38)



- Echeveria*  
     *tectorum* (See *Sempervivum tectorum*)
- Echinacea*  
     *purpurea*  
         Tolerant JBC schedule (101)
- Echinocactus*  
     *horizonthalonius*  
         Plants 15 cm diameter tolerant 48g/2 hr/21.1°C/vacuum  
         380 mm
- Echinops*  
     *ritro*  
         Some injury reported JBC schedule (101)
- Elaeagnus*  
     *angustifolia*  
         Tolerant JBC schedule (101)  
     *pungens*  
         Tolerant JBC schedule (15, 20, 101, 109)  
         Initial injury 32g/2 hr/26.7°-29.4°C (81, 102)  
         Injured 44g/2½ hr/21.1°C; 38g at 23.9°C and  
         32g/26.7°C (19)
- Elodea* (*Anacharis*)  
     *sp.*  
         Tolerant 32g/2 hr/21.1°C
- Enkianthus*  
     *campanulatus*  
         Tolerant JBC schedule (15, 20)
- Epidendrum*  
     *spp.*  
         Greenhouse plants tolerant 32g/2 hr/21.1°C (9)
- Epimedium*  
     *grandiflorum*, *musschianum*, *peralderanum*, *pinnatum rubrum*,  
     *versicolor*  
         Tolerant JBC schedule (15, 20, 101, 109)
- Epiphronitis*  
     *veitchii*  
         3 greenhouse plants tolerant 32g/2 hr/16.7°C (9)

*Epipremnum*

*aureus* (*Pothos aureus*, *Scindapsus aureus*)

1 plant tolerant JBC schedule (15, 101)

Potted plants killed 15g/4 hr/29.4°C (112)

Plants in soil, leaves dropped but recovered  
16g/4 hr/32.2°C (41)

Plants not tolerant 32g/2 hr/21.1°C

*Episcia*

sp.

1 plant tolerant 32g/2 hr/21.1°C

*Eria*

*suavis* (*trichosmas*)

2 greenhouse plants tolerant 32g/2 hr/16.7°-21.1°C (9)

sp.

1 greenhouse plant tolerant 32g/2 hr/16.7°C (9)

*Erica*

*baccans*

Dormant plants killed or seriously injured by 40g/2 hr/  
21.1°C; active growth plants by 32g/2 hr/21.1°C (64)

*carnea*, *melanthera*

Tolerant JBC schedule (15, 20, 101)

*cinerea*

Plants active growth tolerant 36g/1½ hr/21.1°C (38)

*mediterranea*

Initial injury but soon recover 32g/2 hr/26.7°-29.4°C  
(81, 102)

spp.

Initial injury but usually recover - active growth  
32g/2 hr/21.1°C, dormant 2½ hr (57)

Initial injury but soon recover 32g/2 hr/26.7°-29.4°C (81)

*Erigeron*

*speciosus*

Tolerant JBC schedule (101, 109)

*Erodium*

*chamaedryoides*

Tolerant JBC schedule (15, 20, 101)

*Erysium*

*asperum*

Tolerant JBC schedule (101)

*Erythrina*

*crista-galli*

Initial injury but soon recover 32g/2 hr/26.7°-29.4°C  
(81, 102)

## *Euonymus*

### *alata*

Tolerant JBC schedule (15, 20, 101)

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109, 111)

### *fortunei*

Tolerant JBC schedule (15, 20, 101, 109)

### *japonica*

3 plants tolerant JBC schedule (15)

Plants balled or in pots tolerant 40g/2 hr/26.7°-29.4°C (102)

## *Eupatorium*

### *coelestinum*

Tolerant JBC schedule (15, 20, 101)

### *ligustrinum*

Plants active growth tolerant 32g/2 hr/21.1°C, some initial tip burn (38)

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

### *sp.*

Some tip burn 48g/1½ hr/21.1°C/vacuum 660 mm; slight leaf burn 64g (107)

## *Euphorbia*

### *fulgens*

Tolerant JBC schedule (15, 20), 1 of 2 growers reported plants killed (101)

### *pulcherrima* (poinsettia)

Generally tolerant JBC schedule (15, 20)

Tolerant 32g/2 hr/21.1°C

Some injury but recovered 16g/4 hr/29.4°C (112)

1 potted plant tolerant 40g/1½ hr/21.1°C/vacuum 685 mm (45)

Considered intolerant 32g/2 hr/26.7°-29.4°C (81, 102)

### *spp.*

Plants active growth tolerant 32g/2 hr/21.1°C, dormant 2½ hr (57)

## *Eurya*

### *acuminata*

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

### *japonica*

Tolerant 44g/2½ hr/21.1°C; 38g/23.7°C and 32g/26.7°C (19)

## *Exochorda*

### *racemosa*

Tolerant JBC schedule (101)

Dormant plants tolerant 32g/2 hr/21.1°C (38)



- Fagus*  
*sylvatica*  
 Tolerant JBC schedule (15, 20, 101)
- Fatschedera*  
*lizei*  
 1 plant tolerant 32g/1½ hr/21.1°C (38)  
 Plants active growth tolerant 32g/2 hr/21.1°C,  
 dormant 2½ hr (57)
- Fatsia*  
*japonica*  
 Tolerant JBC schedule (15, 20, 101)  
 Initial injury but recover 32g/2 hr/26.7°-29.4°C (81, 102)
- Feijoa*  
*sellowiana*  
 Tolerant 44g/2½ hr/21.1°C; 38g/23.9°C; 32g at 26.7°C (19)
- Felicia*  
*fruticosa* (*Aster fruticosus*)  
 Considered intolerant (81, 102)
- Ferocactus*  
*gracilis*, *peninsulae*, *rectispinus*, *viridescens*, sp.  
 Plants active growth tolerant 32g/2 hr/21.1°C (38)  
 Tolerant JBC schedule (15, 20)
- Ficus*  
*carica*  
 Tolerant 48g/2 hr/26.7°-29.4°C (102)  
 Tolerant 40g/2 hr/37.2°C
- elastica*  
 Potted plants tolerant 16g/4 hr/29.4°C (112)  
 Tolerant JBC schedule (15, 20)  
 Tolerant 48g/2 hr/26.7°-29.4°C; some initial injury in  
 vacuum 660 mm
- kerstingii*  
 2 plants active growth tolerant 40g/1½ hr/21.1°C (38)
- pandurata?*  
 Initial injury but recover 32g/2 hr/26.7°-29.4°C (81, 102)  
 some injury 40g (102)  
 Injured JBC schedule (15, 20, 101)  
 Initial injury but recover 16g/4 hr/29.4°C (112)
- pumila*  
 Tolerant JBC schedule (15, 20, 101)
- retusa*  
 In soil tolerant 8g/4 hr/29.4°C (41)  
 Potted plants tolerant 16g/4 hr/29.4°C (112)

Filipendula

rubra, ulmaria, vulgaris

Tolerant JBC schedule (101)

sp.

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

Fittonia

verschaffeltii

Tolerant JBC schedule (15, 20)

1 of 2 growers reported injury JBC schedule (101)

Fokienia

hodginsi

1 plant active growth severe burn 36g/1½ hr/21.1°C (38)

Fordiophyton

faberi

Barerooted plants wilted and died 16g/1½ hr/21.1°C/vacuum  
660 mm (107)

Forsythia

intermedia

Tolerant JBC schedule (15, 20, 101)

Tolerant 48g/2 hr/21.1°C/vacuum 380 mm; some initial injury  
56g and 64g/1½ hr/21.1°C (109, 111)

ovata, suspensa, viridissima

Tolerant JBC schedule (101, 109)

Fragaria

strawberry plants

Potted plants tolerant JBC schedule, double dose killed  
plants (101)

Tolerant 48g/2 hr/21.1°C; some blossom bud loss 4 hr (55)

Tolerant 48g/2 hr/26.7°-29.4°C; some injury 30.6°-33.3°C  
(54)

Plants active growth tolerant 32g/2 hr/21.1°C; severe  
injury 3 or 4 hr (54)

Cuttings tolerant 20g/6 hr/20°-25°C (74)

chiloensis, strawberry plants

Dormant plants tolerant 48g/2 hr/21.1°C or 32g/3 hr/  
21.1°C injured 64g

Franklinia

alatamaha

3 plants tolerant JBC schedule (101)

Fraxinus

greggii

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

velutina var. glabra

Tolerant 40g/2 hr/26.7°-29.4°C (102)

*Fremontia* (See *Fremontodendron*)

*Fremontodendron*  
*californicum*

Considered intolerant 32g/2 hr/26.7°-29.4°C (81, 102)

*Fuchsia*

*arborescens*

Plants active growth occasional burn but recover  
16g/2 hr/21.1°C (38)

Plants active growth tolerant 32g/1½ hr/21.1°C but 4 of  
91 plants considerable burn (38)

sp.

Initial injury but soon recover 32g/2 hr/26.7°-29.4°C  
(81, 102)

Injured JBC schedule (101)



Gaillardia

aristata

Tolerant JBC schedule (20)

sp.

Tolerant JBC schedule (15, 101, 109)

Galanthus

bulbs

Tolerant 48g/2 hr/21.1°C

Tolerant 40g/1½ hr/18.3°-21.1°C/vacuum 380 mm (109, 110)

Galium

longifolium (*Asperula odorata*)

3 plants injured by JBC schedule (101)

Gardenia

jasminoides

Tolerant JBC schedule (15, 20, 101)

Tolerant 40g/2 hr/26.7°-29.4°C (102)

Tolerant 44g/2½ hr/21.1°C, 38g at 23.9°C and 32g at 26.7°C (19)

Potted plants tolerant 15g/4 hr/29.4°C (112)

In soil tolerant 8g/4 hr/30.6°C (41)

Tolerant 32g/2 hr/26.7°C/vacuum 620 mm; to 96g at 4.4°C (63)

cut flowers

Tolerant 48g/2 hr/15°C (60)

Gasteria

angulata, brevifolia, carinata, cheilophylla, fuscopunctata, maculata, mollis, nitida, subnigricans

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

Genista (See also *Cytisus*)

monosperma

Plants initial injury but soon recover 40g/2 hr/26.7°-29.4°C (81, 102)

pilosa

Tolerant JBC schedule (15, 20, 101, 109)

Gentiana

acaulis, clusii

Tolerant JBC schedule (101)

Geranium (See also *Pelargonium*)

spp.

Initial injury but soon recover (81)

Gerbera

sp.

Plants active growth injured 32g/2½ hr/21.1°C (6)

Plants active growth slight injury to foliage 12g/4 hr/21.1°C (6)

Geum

borisii, quellyon, sp.

Tolerant JBC schedule (101)

sp.

1 plant active growth tolerant 32g/1½ hr/21.1°C (38)  
Tolerant 40g/1½ hr/18.9°C

Ginkgo

biloba

Tolerant JBC schedule (15, 20, 101, 109)

Gladiolus

bulbs

Tolerant 48g/4 hr/27°C but not 80g (13)

Tolerant 32g/5 hr/21.1°C (62)

Tolerant 80g/2½ hr/18.3°C

Tolerant 72g/2 hr/21.1°C/vacuum 380 mm

cut flowers

Tolerant 32g/2 hr/21.1°C (103)

Gleditsia

sinensis

1 plant active growth tolerant 32g/2 hr/21.1°C (38)

Gloriosa

tubers

Tolerant 48g/2 hr/21.1°C

Gloxinia (See Sinningia)

Gongora

quinquenervis

Greenhouse plants tolerant 32g/2 hr/16.7°-23.9°C (9)

Griffinia

hyacinthina

2 dormant plants tolerant 32g/1½ hr/21.1°C (38)

Griselinia

littoralis

Considered intolerant 32g/2 hr/26.7°-29.4°C (81, 102)

Guadua

sp.

1 plant active growth severe burn and defoliation  
32g/1½ hr/21.1°C (38)

Guzmania

musaica

Reported tolerant 32g/2 hr/21.1°C

Gypsophila

sp.

Plants tolerant JBC schedule; cv Bristol Fairy reported  
killed by 1 of 6 growers (101)

- Haemanthus*  
*katharinae*  
 2 dormant plants tolerant 32g/1½ hr/21.1°C (38)
- Halesia*  
*carolina*  
 Tolerant JBC schedule (101)
- Hamamelis*  
*mollis*  
 Tolerant JBC schedule (101)  
*virginiana*  
 Tolerant 32g/2 hr/21.1°C (38)
- Haworthia*  
*angustifolia*  
 Plants active growth tolerant 32g/1½ hr/21.1°C (38)  
*attenuata, tortuosa*  
 2 plants each active growth tolerant 32g/2 hr/21.1°C (38)
- Hebe*  
 spp.  
 Some varieties or species not affected by bare rooting or 32g/2 hr/21.1°C (active) or 2½ hr/21.1°C (dormant); some show temporary effect; some seriously injured or killed (57)
- Hedera*  
*dankeriana?*  
 2 greenhouse plants tolerant JBC schedule (15)  
*helix*  
 Tolerant JBC schedule (15, 20, 101, 109)  
 Active plants tolerant 32g/2 hr/21.1°C; 36g/1½ hr/21.1°C (38)  
 Tolerant 16g/16 hr/16.9°-21.1°C (57)  
 Tolerant with some initial injury 40g/2 hr/26.7°-29.4°C (102)  
 Not injured by barerooting or 32g/2 hr/21.1°C (active growth) or 2½ hr dormant (57)
- Hedychium*  
 spp. (including *ghalii*, *pradhani*, *samsherii*)  
 Dormant plants tolerant 32g/2 hr/21.1°C (38)
- Helenium*  
*autumnale*, sp.  
 Tolerant JBC schedule (15, 20, 101, 109)



*Helianthemum*

sp.

Tolerant JBC schedule (15, 20, 101, 109)

*Helianthus*

sp.

Tolerant JBC schedule (101)

*Heliopsis*

*helianthoides*

Tolerant JBC schedule (101)

*Heliotropium*

cv Royal fragrance

Injury reported with JBC schedule (101)

*Helleborus*

*niger*

Tolerant JBC schedule (15, 101, 109)

Tolerant 48g/2½ hr/21.1°C

*Hemerocallis*

*thunbergii*, spp.

Tolerant JBC schedule (15, 20, 101, 109)

*Heteromeles*

*arbutifolia*

Tolerant 32g/2 hr/26.7°-29.4°C (102)

*Heuchera*

*sanguinea*, sp.

Tolerant JBC schedule (15, 20, 101, 109)

*Heurnia*

*thureti*

4 dormant plants tolerant 32g/2½ hr/21.1°C (38)

Dormant plants tolerant 32g/2 hr/21.1°C (38)

*Hibiscus* (See also *Alcea*)

*rosa-sinensis*

Tolerant JBC schedule (101)

Some initial injury but soon recover 32g/2 hr/21.1°C  
(active) 2½ hr dormant (57)

*syriacus*

Tolerant JBC schedule (15, 109)

spp.

Potted plants some injury but recover 16g/4 hr/29.4°C (111)

In soil leaves dropped but recover 8g/5 hr/33.9°C (41)

Initial injury but recover 32g/2 hr/26.7°-29.4°C (81, 102)

*Hippeastrum* (See also *Amaryllis*)

*aulicum*, *decoratum?*, *striatum*

Dormant plants tolerant 32g/1½ hr/21.1°C (38)

*puniceum*, *reginae*

Dormant plants tolerant 36g/1½ hr/21.1°C (38)

*psittacinum*

Plants active growth tolerant 32g/2 hr/21.1°C,  
36g/1½ hr/21.1°C (38)

bulbs

Tolerant 48g/2 hr/21.1°C/vacuum 660 mm

*Hippocrepis*

*comosa*

6 plants tolerant JBC schedule (101)

*Hosta*

*minor*

Tolerant 48g/1½ hr/21.1°C/vacuum 660 mm, injury  
64g (107)

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109)

*ventricosa*

Tolerant JBC schedule (15, 20, 101)

*Howea*

*belmoreana*

Tolerant JBC schedule (15, 20)

*forsterana*

Tolerant JBC schedule, possibly some injury (15, 20, 101)

Tolerant 40g/1½ hr/21.1°C/vacuum 660 mm (44)

sp.

Potted plants tolerant 32g/2 hr/26.7°-29.4°C, injured  
40g (102)

*Hoya*

*carnosa*

Initial injury but soon recover 32g/2 hr/26.7°-29.4°C  
(81, 102)

*Humulus*

sp.

Tolerant JBC schedule (101)

Tolerant 40 and 48g/2 hr/21.1°C

*Hyacinthus*

*orientalis* (bulbs)

Tolerant 48g/2 hr/21.1°C/NAP & vacuum 380 mm, some  
injury 3 hr (14)

Tolerant 48g/2 hr/21.1°C/vacuum 380 mm (114)

Hydrangea

arborescens, heteromalla, macrophylla, paniculata

Tolerant JBC schedule (15, 101, 109)

macrophylla

Tolerant 64g/l $\frac{1}{2}$  hr/21.1°C/vacuum 380 mm (109, 111)

Potted plants initial injury but recover 32g/2 hr/  
26.7°-29.4°C (81, 102)

Hymenocallis

spp.

4 plants active growth tolerant 32g/l $\frac{1}{2}$  hr/21.1°C (38)

Hypericum

calycinum, densiflorum, kalmianum, moseranum

Tolerant JBC schedule (15, 20, 101)

oblongifolium, sp.

Dormant plants tolerant 40g/l $\frac{1}{2}$  hr/21.1°C (38)

Hypochoeris

grandiflora?

7 plants active growth tolerant 32g/l $\frac{1}{2}$  hr/21.1°C (38)

Hyssopus

officinalis

9 plants tolerant JBC schedule (101)

## **Iberis**

*gibraltarica*, *saxatilis*, *sempervirens*, sp.

Tolerant JBC schedule (101)

## **Ilex**

*aquifolium*

Tolerant JBC schedule (15, 20, 109)

Balled plants tolerant 32g/2 hr/26.7°-29.4°C (102)

*cassine*, *cornuta*, *crenata*, *opaca*

Tolerant 44g/2½ hr, 38g at 23.9°C and 32g at 26.7°C (19)

*cassine*, *paraguariensis*, *vomitorea*

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

*cornuta*, *crenata*, *opaca*, *verticillata*

Tolerant JBC schedule (20, 101)

*pedunculosa*

Leaves burned 16g/1½ hr/21.1°C/vacuum 660 mm.

Leaf drop 32g, plants recover but weak (107)

## **Impatiens**

*platypetala*

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

## **Incarvillea**

sp.

3 plants active growth tolerant 32g/1½ hr/21.1°C (38)

## **Indigofera**

*gerardiana*, sp.

Dormant plants tolerant 32g/2 hr/21.1°C (38)

*leptostachya*

Dormant plants tolerant 36g/1½ hr/21.1°C (38)

*splendans?*

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109)

Tolerant 48g/1½ hr/21.1°C/vacuum 660 mm, at 64g 2 of  
5 plants died (107)

## **Ipomoea**

*cairica*

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

cv Scarlett O'Hara

1 plant tolerant JBC schedule (101)

## **Iresine**

*lindenii*

Greenhouse plants tolerant 16g/16 hr/16.7°-21.1°C (52)



**Iris**

**kaempferi, spp.**

**Tolerant JBC schedule (15, 20, 101, 109)**

**bulbs**

**Tolerant 48g/15 hr/21.1°C (26)**

**Tolerant 32g/4 hr/26.7°-29.4°C but some varieties  
slightly retarded (113)**

Jacaranda

acutifolia

Plants active growth mature leaves lost 32g/2 hr/21.1°C;  
all leaves lost but releafed 2½ hr (38)

caucana, sp.

Plants active growth tolerant 32g/1½ hr/21.1°C,  
refumigated 2 months (38)

Jasminum

floridum, mesnyi

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at  
26.7°C (19)

nudiflorum

Tolerant JBC schedule (15, 20, 109) some injury  
reported (101)

rex, sambac, volubile

Cuttings tolerant 32g/2 hr/21.1°C/vacuum 660 mm

sambac

3 plants tolerant 40g/1½ hr/21.1°C

Jatropha

podagrica

Plants active growth tolerant 32g/1½ hr/21.1°C,  
refumigated at 2 days (38)

Juglans

regia

Scions did not survive 48g/2 hr/21.1°C (no untreated  
scions)

Juniperus

spp. and varieties

Dormant plants more tolerant than active growing plants

Dormant plants usually tolerant 40g/2 hr/21.1°C

Tolerant with some initial injury 32g/2 hr/26.7°-  
29.4°C (81, 102)

Most species and varieties tested tolerant JBC schedule  
(15, 101)

chinensis, communis, excelsa, sabina

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at  
26.7°C (19)

chinensis sargentii

Injured by 44g/2½ hr/21.1°C; 38g at 23.9°C and 32 g at  
26.7°C (19)

chinensis femina, chinensis japonica, communis depressa plumosa,  
japopica oblonga

Not tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at  
26.7°C (19)

communis suecica, excelsa stricta, horizontalis plumosa

Tolerant 96g/1½ hr/21.1°C/vacuum 380 mm (109)

Justicia

fulvicoma (Beloperone comosa)

Tolerant 32g/1½ hr/21.1°C (38)

## Kalanchoe

### beauverdiif

Dormant plants tolerant 64g/1½ hr/21.1°C/vacuum 380 mm  
(109, 110)

### blossfeldiana

Greenhouse plants tolerant 16g/16 hr/16.7°-21.1°C (52)

blossfeldiana, bracteata, marmorata, schimperuana, sexangularis,  
thyrsiflora

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

### blossfeldiana, flamnea

Tolerant JBC schedule (15, 20, 101)

hildebrandtii, lanceolata, orgyalis, peltata, verticillata

Plants active growth initial injury some defoliation  
and burn 32g/1½ hr/21.1°C (38)

hildebrandtii, miniata, velutina

Plants active growth initial injury defoliation and  
burn 32g/2 hr/21.1°C (38)

### integra, pubescens

Plants active growth tolerant 32g/2 hr/21.1°C (38)

### laciniata, uniflora

Plants dormant tolerant 40g/1½ hr/21.1°C/vacuum 660 mm (38)

Tolerant 48g/1½ hr/21.1°C/vacuum 380 mm (109)

### synsepala

Plants active growth 4 of 8 died 32g/2 hr/21.1°C (38)

### spp.

Initial injury but recover (81)

Tolerant 32g/1½ hr/21.1°C/vacuum 380 mm (109)

## Kalmia

### latifolia

3 semi-dormant plants tolerant JBC schedule (15, 20)

## Kentia (See Howea)

## Kerria

### japonica

Dormant plants tolerant JBC schedule (15, 20, 109)

## Kniphofia

### uvaria, sp.

Tolerant JBC schedule (15, 20, 101, 109)

## Koelreuteria

### sp.

Dormant plants tolerant 32g/2 hr/21.1°C (38)

## Kolkwitzia

### amabilis

Tolerant JBC schedule (15, 20, 101, 109)



Laburnum

watereri

2 dormant plants tolerant JBC schedule (101)

Laelia

spp.

Greenhouse plants tolerant 32g/2 hr/16.7°-29.4°C (9)

Tolerance limits near 32g/2 hr/26.7°-29.4°C (102)

Lantana

camara, montevidensis

Greenhouse plants tolerant 16g/16 hr/21.1°C (52)

spp.

Initial injury but soon recover 32g/2 hr/26.7°-29.4°C  
(81, 102)

Injury reported JBC schedule, possibly some killed (101)

Larix

decidua

5 plants tolerant JBC schedule (101)

Lathyrus

latifolius, odoratus

Tolerant JBC schedule (101)

Laurus

nobilis

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at  
26.7°C (19)

Lavandula

stoechas

Considered intolerant (102)

cv. Twickel Purple

Killed JBC schedule (101)

sp.

Not tolerant 12g/2 hr/21.1°C

Leonotis

leonurus

Initial injury but soon recover 32g/2 hr/26.7°-29.4°C  
(81, 102)

Leontopodium

sp.

6 plants tolerant JBC schedule (101)

Leucothoe

fortanesiana

Tolerant JBC schedule (101)

*Leycesteria*  
*formosa*

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

*Liatris*

*pycnostachya*, sp.

Tolerant JBC schedule (15, 20, 101, 109)

*Ligustrum*

*amurense*, *lucidum*, *ovalifolium*

Tolerant JBC schedule (15, 20, 101, 109)

*amurense*, sp.

Dormant plants tolerant 32g/2 hr/21.1°C (38)

*japonicum*, *lucidum*, *tschonskii*

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)

*quihoui*

Injured by 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)

sp.

Balled plants tolerant 32g/1½ hr/21.1°C/vacuum 660 mm at 26.7°C to 96g at 5°C (63)

Tolerant 8g/4 hr/30.6°C (41)

Tolerant 50g/3 hr/30g/8 hr/15°C (78)

*Lilium*

*candidum*

Plants tolerant JBC schedule (101)

*longiflorum* v. *giganteum* (Easter lily)

Bulbs tolerant 48g/2 hr/21.1°C if planted within 8 months (115)

*longiflorum* v. *erabu*

Bulbs tolerant 48g/2 hr/21.1°C if planted within 2 weeks (115)

*longiflorum* cv Croft

Bulbs tolerant 48g/4 hr/21.1°C (113)

Bulbs stimulated 48g/2 hr/21.1°C (38)

*Limonium*

sp.

Tolerant JBC schedule (101)

*Linum*

*flavum*, *perenne*

Tolerant JBC schedule (101)

sp.

2 plants active growth tolerant 32g/2 hr/21.1°C (38)

- Liquidambar  
 styraciflua  
   Tolerant JBC schedule (101)  
 sp.  
   Dormant plants tolerant 40g/2 hr/26.7°-29.4°C (102)
- Liriodendron  
 tulipifera  
   Tolerant JBC schedule (101)  
 sp.  
   Dormant plants tolerant 40g/2 hr/26.7-29.4°C (102)
- Liriope  
 muscari  
   Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)
- Lithospermum  
 sp.  
   Tolerant JBC schedule (15, 20, 101, 109)
- Livistona  
 chinensis  
   Potted plants tolerant 8g/4 hr/30.6°C (36)  
   Potted plants tolerant 16g/4 hr/29.4°C (112)
- Lobelia  
 cardinalis  
   Tolerant JBC schedule (15, 20, 101, 109)  
 cv rosea  
   24 plants active growth tolerant 32g/1½ hr/21.1°C (38)  
   Tolerant 32g/1½ hr/21.1°C/vacuum 660 mm, injured 48g and 64g (107)  
 splendens  
   Plants active growth tolerant 32g/1½ hr/21.1°C (38)
- Lockhartia  
 lunifera  
   4 greenhouse plants tolerant 32g/2 hr/16.7°C (9)
- Lonchocarpus  
 nicou, sp.  
   1 plant each active growth tolerant 32g/1½ hr/21.1°C (38)

## **Lonicera**

*fragrantissima*, *herckotti*, *japonica*, *maackii*, *magnifolia*,  
*nitida*, *periclymenum*, *pileata*, *tatarica*

Plants tolerant JBC schedule (15, 20, 101, 109)

*macrantha*

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

*microphylla*, sp.

Dormant plants tolerant 32g/2 hr/21.1°C (38)

## **Lupinus**

spp.

Some initial injury but recover JBC schedule (101)

## **Lycaste**

*barringtoniae*

Dormant plants consider tolerant 48g/2 hr/21.1°C/  
vacuum 380 mm

*virginialis*

Dormant plants tolerant 48g/2 hr/21.1°C (51)

spp.

Greenhouse plants tolerant 32g/2 hr/16.7°-23.9°C (9)

## **Lychnis**

*coeli-rosa*, *viscaria*, spp.

Tolerant JBC schedule (101)

## **Lycium**

*barbarum*

Tolerant JBC schedule (101)

## **Lycoris**

*squamigera*

Bulbs tolerant 48g/4 hr/26.7°-29.4°C

## **Lycopersicon**

*lycopersicum*

Plants tolerant 24g/2 hr/27.8°C

Plants tolerant 20g/1½ hr/21.1°C (75)

Barerooted plants injured unless protected by sphagnum, etc. (4)

Greenhouse plants tolerant 16g/16 hr/16.9°-21.1°C (52)

Not tolerant 40g/16 hr/21.1°C (16)

Plants in soil slight loss 32g/2 hr/21.1°C

## **Lysimachia**

*ciliata*

Tolerant JBC schedule (101)

## **Lythrum**

*salicaria*, sp.

Tolerant JBC schedule (101)



*Macadamia*

*integrifolia*

Budwood cuttings tolerant 48g/2 hr/21.1°C

*Macrozamia*

*stenomera*

Tolerant to more than 48g/2 hr/21.1°C

*Magnolia*

*grandiflora*

Injured by 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)

*kobus, soulangiana, stellata*

Tolerant JBC schedule; some stimulation (15, 20)

*soulangiana*

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109); 56g (111)

*virginiana*

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.9°C (19)

*spp.*

Tolerant JBC schedule (101)

*Mahonia*

*bealei, fortunei*

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)

*sp.*

Not tolerant 40g/5 hr/15°C (77)

*Malpighia*

*glabra*

Tolerant 44g/21 hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)

*Malus*

*pumila*

Dormant plants in soil tolerant 48g/4 hr/15.6°C and 32g/4 hr (39)

*cv. Northern Spy*

Tolerant 64g/1½ hr/21.1°C-23.9°C/vacuum 380 mm (109)

*cv. Worcester*

4 plants tolerant 48g/3-3/4 hr/20°C (27)

4 plants tolerant 64g/3-3/4 hr/5°C (27)

*cv. Cox*

4 plants tolerant 48g/2½ hr/21.1°C but not 3-3/4 hr 20°C (27). Injured 32g/2½ hr/30°C (27)

*spp.*

Tolerant JBC schedule (101)

Tolerant 40g/5 hr/15°C (77)

Tolerant 40g/7 hr/15°C, 50g/4 hr/15°C (78)

Tolerant 54g/4 hr/18.3°C (109)

**Malva**

sp.

Tolerant JBC schedule (101)

**Mammillaria**

spp.

Tolerant 48g/3 hr/21.1°C/vacuum 380 mm 10°C

Tolerant JBC schedule (15, 101)

Not affected by bare rooting or fumigation - non dormant  
plants tolerant 32g/2 hr/21.1°C, dormant 40g/2 hr/  
21.1°C (57)

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

Tolerant 48g/2 hr/21.1°C/vacuum 380 mm (38)

Tolerant 40g/2 hr/21.1°C; 20g/2 hr/26.7°-29.4°C (102)

**Mangifera**

indica

Potted plants tolerant 40g/2¼ hr/21.1°C, but not 50g (56)

Potted plants tolerant 51.1g/2 hr/21.1°C; some leaves  
scorched 27.2°-37.2°C; and 50% leaves scorched  
33.3°-36.7°C (48)

Potted plants tolerant 59.2g/2 hr/21.1°C with few leaves  
scorched (48)

Potted plants leaves scorched but recovered 59.2g/2 hr/  
33.3°-36.7°C (48)

**Manihot**

esculenta

Tolerant 32g/2 hr/21.1°C/vacuum 660 mm 33.3°C

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

**Maranta**

leuconeura

Few plants tolerant JBC schedule with some injury  
reported (15, 20, 101)

spp.

Initial injury but soon recover 32g/2 hr/26.7°-29.4°C  
(81, 102)

**Masdevallia**

sp.

1 greenhouse plant tolerant 32g/2 hr/16.7°C (9)

**Matricaria**

cv Little Gem

3 plants tolerant JBC schedule (101)

**Maurandia (Maurandya) (See Asarina)**

**Maxillaria**

*densa* (Ornithidium d.)

Greenhouse plants tolerant 32g/2 hr/21.1°C (9)

*picta*, *tenuifolia*, *variabilis*

Greenhouse plants tolerant 32g/2 hr/16.7°-23.9°C (9)

*sanguinea*

3 greenhouse plants tolerant 28g/1.5 hr/21.7°-29.4°C (9)

**Mazus**

*sp.*

12 plants tolerant JBC schedule (101)

**Medicago**

*sativa*

Cuttings not tolerant 24g/2½ hr/26.7°-32.2°C but plants held 24 hours before planting after 24g/2½ hr/21.1°-26.7°C did better.

**Megaclinium** (See *Bulbophyllum*)

**Melastoma**

*sp.*

Plants active growth tolerant 32g/1½ hr/21.1°C but old growth checked (38)

**Mentha**

*arvensis*

50% or more roots survived 40g/2 hr/21.1°C

**Mertensia**

*virginica*, *sp.*

Plants tolerant JBC schedule (101)

**Mesembryanthemum**

*acinaciforme*, *sp.*

10 plants active growth tolerant 32g/1½ hr/21.1°C (38)

*rigidicaule*

5 plants active growth tolerant 40g/1½ hr/21.1°C (38)

**Michelia**

*figo*

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)

**Microcoelum**

*weddellianum* (*Cocos w.*, *Syagrus w.*)

Tolerant JBC schedule (101)

**Mimulus**

*glauc*

Some initial injury JBS schedule (101)

**Miscanthus**

**sinensis**

2 dormant plants tolerant JBC schedule (15, 20, 109)

**Monarda**

**didyma**

Tolerant JBC schedule (15, 20, 101, 109)

**Mondo (See Ophiopogon)**

**Mondora**

**tenuifolia**

1 plant active growth tolerant 32g/1½ hr/21.1°C (38)

**Monstera**

**deliciosa**

5 plants active growth injured, surviving plants  
recovered JBC schedule (15)

Initial injury but soon recover 32g/2 hr/26.7°-29.4°C  
(81, 102)

Injured JBC schedule (20, 101)

**Musa**

**paradisiiaca**

1 plant active growth tolerant 32g/1½ hr/21.1°C (38)

**sp.**

Plants considered intolerant (81, 102)

Root cuttings injured 32g/2-¾ hr/12.8°C

No injury 3 large cuttings 36g and 52g/2 hr/18.3°C (116)

No injury 36g/2 hr/21.1°C/vacuum 380 mm (116)

Injured 44g/2 hr/21.1°C/NAP and vacuum 380 mm

**Muscari**

**comosum**

Bulbs tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109, 110)

**sp.**

Bulbs tolerant 48g/4 hr/21.1°C (112, 113)

**Mysosotis**

**scorpioides**

Tolerant JBC schedule (15, 20, 101, 109)

**sp.**

Tolerant JBC schedule but some injury reported (101)

**Myrica**

**cerifera**

Tolerant JBC schedule (101)



**Myrtilocactus**

**geometrizzans**

Cuttings tolerant 32g/2 hr/21.1°C but 2nd shipment  
most died.

**Myrtus**

**communis**

Initial injury but recover 32g/2 hr/26.7°-29.4°C (81, 102)

**Nandina**

**domestica**

Tolerant JBC schedule (15, 20)

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)

**Marcissus**

**Bulbs**

Tolerant 48g/2 hr/21.1°C/vacuum 380 mm (114)

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109)

Tolerant 48g/4 hr/21.1°C (7, 112)

Tolerant 20g/20 hr/21.1°C; injury with 30g (49)

Tolerant 48g/12 hr/21.1°C but not 24 hr at 15.6°C (1)

Tolerant 48g/4½ hr/21.1°C plus 2nd fumigation 2 days later (1)

**cv Laurens Kosten**

Tolerant 96g/2¼ hr/21.1°C/vacuum 685 mm (65)

**cv Talma**

Some injury 48g/2¼ hr/21.1°C/vacuum 685 mm (65)

Some injury 50g/10 hr/21.1°C but presoak in water reduced phytotoxicity (65)

Tolerant 62g/4 hr/21.1°C (29)

**Nathusia (See Schrebera)**

**Neanthe (See Chamaedorea)**

**Neomarica**

**gracilis**

2 plants active growth tolerant 32g/1½ hr/21.1°C (38)

**Nepeta**

**cataria, mussinii, sp.**

Tolerant JBC schedule (15, 20, 101, 109)

**Nephelium**

**sp.**

Reported sensitive

**Nephrolepis**

**cordifolia plumosa**

Small greenhouse plants slight injury 40g/2 hr/16.7°C; not tolerant 24g/2 hr/26.7°C

**exalta bostoniensis**

Tolerant 16g/16 hr/16.9°-21.1°C (52)

Generally tolerant but some injury reported JBC schedule (15, 20, 101)

Tolerant 8g/4 hr/32.2°C (41)

Tolerant 32g/2 hr/26.7°-29.4°C (102)

Small greenhouse plants severe injury 24g/2 hr/26.7°C

Nephtytis (See Syngonium)

Nerine

humilis

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

Nerium

oleander

Initial injury but recover 32g/2 hr/26.7°-29.4°C (81, 102)

Nidularium

sp.

Reported injured 32g/2 hr/21.1°C

Nierembergia

hippomanica

3 plants tolerant JBC schedule (101)

Nolina

sp.

Tolerant 32g/2 hr/21.1°C but not vacuum 660 mm

Nymphaea

stellata

Tubers tolerant but near limits 48g/2 hr/21.1°C

*Odontoglossum*

*grande, pendulum, sp.*

Greenhouse plants tolerant 32g/2 hr/21.1°C (9)

*pulchellum, spp.*

Greenhouse plants tolerant 28g/2 hr/21.1°C (9)

*sp.*

Dormant plants tolerant 48g/2 hr/21.1°C (51)

*Oenothera*

*cvs*

Few plants tolerant JBC schedule (101)

*Olea*

*sp.*

Plants balled or potted tolerant 40g/2 hr/26.7°-29.4°C (102)

2-3 year old bareroot tolerant 30g/2 hr/21.1°C, some injury

60g/2 hr/21.1°C/NAP or vacuum 380 mm (47)

*Omanthe*

*costaricana*

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

*Oncidium*

*splendidum*

Dormant plants tolerant 48g/2 hr/21.1°C (51)

*varicosum*

Dormant plants tolerant 48g/2 hr/21.1°C/vacuum 380 mm (51)

*spp.*

Greenhouse plants tolerant 32g/2 hr/16.7°-29.4°C (9)

*Oncoba*

*routledgei*

1 plant active growth considerable defoliation 32g/1½ hr/  
21.1°C (38)

*Ophiopogon*

*jaburan*

Tolerant JBC schedule (15, 20, 109)

*japonicus*

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at  
26.7°C (19)

*Opsiandra*

*maya*

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

*Opuntia*

*sp.*

Tolerant JBC schedule (15, 20)

Plants active growth tolerant 32 & 40g/1½ hr/21.1°C (38)

Tolerant 32 & 48g/1½ hr/21.1°C/vacuum 380 mm (109)



Ornithidium (See Maxillaria)

Ornithogalum

cut flowers

Tolerant 32g/2 hr/21.1°C (116)

Tolerant 40g/1½ hr/21.1°C

Osbeckia

crinita?

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

nepalensis

Plants wilted and died 16g/1½ hr/21.1°C/vacuum 660 mm (107)

stellata

Plants probably injured but recover 48 to 64g/1½ hr/21.1°C/  
vacuum 660 mm (107)

Osmanthus

americanus

Considered intolerant (81, 102)

americanus, fortunei, fragrans

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at  
26.7°C (19)

heterophyllus

Plants drop foliage JBC schedule (101)

Initial injury but recover 32g/2 hr/26.7°-29.4°C (81, 102)

Oxydendrum

arboreum

Plants tolerant JBC schedule, some stimulation (15, 20, 101)

*Pachysandra*

*terminalis*

Tolerant JBC schedule (15, 20, 101, 109)

Greenhouse plants tolerant 16g/16 hr/16.9°-21.1°C (52)

*Paeonia*

*officinalis*

Dormant plants tolerant JBC schedule (15, 20, 101, 109)

Roots tolerant 32g/2 hr/21.1°C/NAP and vacuum 380 mm but  
not 64g/1½ hr/21.1°C/vacuum 660 mm

Palms (See specific genera)

*Pandanus*

*veitchii*

In soil tolerant 8g/4 hr/32.2°C (41)

Potted plants except with pure white leaves tolerant  
16g/4 hr/29.4°C (112)

Greenhouse plants severe injury, JBC schedule most  
leaves killed; some plants develop new vigorous  
suckers (15)

Initial injury but recover 32g/2 hr/26.7°-29.4°C (81, 102)

Injured JBC schedule (20, 101)

*Papaver*

*nudicaule, orientale*

Tolerant JBC schedule (15, 20, 101, 109)

*Parthenocissus*

*quinquefolia, tricuspidata*

Tolerant JBC schedule, possible slight damage to growing  
plants (15, 20, 101, 109)

*Pedilanthus*

*sp.*

Potted plants tolerant 16g/4 hr/29.4°C (111)

*Pelargonium*

*domesticum, graveolens, peltatum*

Greenhouse plants tolerant 16g/16 hr/16.9°-21.1°C (52)

*graveolens*

Some injury reported JBC schedule (101)

*zonale*

Tolerant JBC schedule (15, 101)

*sp. (florists geranium)*

Tolerant JBC schedule (101)

Cuttings tolerant 20g/1½ hr/21.1°C (21)

Initial injury but recover 32g/2 hr/26.7°-29.4°C (81, 102)

*Pellaea*

*hastata*

Small greenhouse plants slight injury 32g/2 hr/16.7°C,  
not tolerant 40g/2 hr/16.7° or 32g/2 hr/21.1°C

*rotundifolia*

Small greenhouse plants tolerant 48g/2 hr/16.7°C

*sagittata*

Small greenhouse plants tolerant 40g/2 hr/21.1°C

*Penstemon*

*barbatus*, sp.

Tolerant JBC schedule (101)

sp.

Cut flowers tolerant 40g/1½ hr/21.1°C/vacuum 507 mm (45)

*Pentas*

*bussei*

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

*Peperomia*

*argyreia*

1 plant tolerant JBC schedule (15)

Plants active growth killed or seriously injured  
32g/2 hr/21.1°C (57)

*caperata*

Plants active growth killed or seriously injured  
32g/2 hr/21.1°C (57)

*maculosa*, *obtusifolia*

Tolerant JBC schedule (15, 20, 101)

sp.

Potted plants (green and variegated) tolerant  
16g/4 hr/29.4°C (110)

Plants active growth tolerant 32g/2 hr/21.1°C (57)

*Peristeria*

*elata*

Bulbs tolerant 32g/2 hr/16.7°C (9)

*Persea*

*americana*

Tolerant 32g/2 hr/26.7°-29.4°C (102)

*Pescatorea*

sp.

1 greenhouse plant tolerant 32g/2 hr/16.7°C (9)

*Petrorhagia* (Tunica)

*saxifraga*

2 dormant plants tolerant JBC schedule (15, 20, 109)

*Petunia*

*hybrida*

Tolerant JBC schedule although some injury reported (101)  
Greenhouse plants tolerant 16g/16 hr/16.9°-21.1°C (52)

*Phaius*

*flavus, tankervilliae*

Greenhouse plants moderate injury 28g/2 hr/21.1°C (9)

*Phalaenopsis*

*amabilis, sp.*

Greenhouse plants tolerant 32g/2 hr/21.1°C (9)

*Phalocallis* (See *Cypera*)

*Phaseolus*

*vulgaris*

Greenhouse plants tolerant 16g/16 hr/16.9°-21.1°C (52)

*Philadelphus*

*coronarius*

Dormant plants tolerant 64g/1½ hr/21.1°C/vacuum 380 mm  
(109, 111)

*coronarius, inodorus, lemoinei, nivalis, virginalis*

Tolerant JBC schedule (15, 20, 101, 109)

*delavayi, spp. (6)*

Dormant plants tolerant 32g/2 hr/21.1°C (38)

*purpureomaculatus*

Plants active growth tolerant 36g/1½ hr/21.1°C (38)

*Phillyrea*

*decora*

Plants active growth tolerant 36g/1½ hr/21.1°C (38)

*Philodendron*

*cordatum*

Severe injury, especially in smallest pots JBC schedule  
(15, 20, 101)

Potted plants tolerant 16g/4 hr/21.1°C (112)

Initial injury but plants recover 32g/2 hr/26.7°-29.4°C  
(81, 102)

*domesticum (probably) (hastatum)*

Canes tolerant 32g/2 hr/32.2°C

*pertussum*

See *Monstera deliciosa*

*scandens*

Slight injury to leaves JBC schedule (15)

Initial injury but plants recover 32g/2 hr/26.7°-29.4°C  
(81, 102)

*sp.*

Tolerant 48g/2 hr/21.1°C/vacuum 380 mm

Plants active growth tolerant 32g/2 hr/21.1°C (57)



Phlox

subulata, spp.

Tolerant JBC schedule (15, 20, 101, 109)

Phoenix

dactylifera

Offsets tolerant 48g/2 hr/21.1°C/vacuum 380 mm

Offsets tolerant 40g/1½ hr/21.1°C/vacuum 660 mm (44)

Offsets tolerant 48g/2 hr/21.1°C (61)

loureirii

Greenhouse plants tolerant JBC schedule (15, 20, 101)

Potted plants tolerant 16g/4 hr/29.4°C (111)

Tolerant 40g/2 hr/29.4°C (102)

rupicola

1 plant active growth tolerant 32g/1½ hr/21.1°C (38)

Pholidota

imbricata

3 greenhouse plants tolerant 32g/2 hr/16.7°C (9)

Photinia

arbutifolia (See Heteromeles)

glabra, serrulata

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)

Phyllitis

scolopendrium

Small greenhouse plants tolerant 40g/2 hr/21.1°C

Physalis

alkekengi (Chinese lantern)

Tolerant JBC schedule (101)

Physocarpus

opulifolius

Dormant plants tolerant JBC schedule (15, 20, 109)

Physostegia

virginiana

Tolerant JBC schedule (15, 101, 109)

Picea

glauca and cvs

Some injury reported JBC schedule (101)

Some injury to new growth, plants survived 64g/2 hr/15.6°C; 80g at 10°C and 96g at 4.4°C (104)

Plants in active growth tolerant 32g/2 hr/21.1°C; non-dormant 40g/2 hr/21.1°C (57)

*Picea* (Continued)

*pungens*

Severe injury to apparent non-dormant plants in soil  
JBC schedule (40)

Tolerant to injured JBC schedule (101)

*spp.*

Tolerant to injured JBC schedule (101)

Plants active growth killed or severely injured  
32g/2 hr/21.1°C; dormant 32g/2½ hr/21.1°C (57)

*Pieris*

*floribunda, japonica*

Dormant plants tolerant JBC schedule (15, 20, 101)

*Pinckneya*

*pubens*

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

*Pinus*

*banksiana, resinosa*

Seedlings in bales tolerant 64g/2 hr at 15.6°C,  
80g at 10°C, and 96g at 4.4°C (104) tolerant  
128g at 4.4°C and 96g at 10°C

*bungeana, densiflora, flexilis, mugo, nigra, strobus, sylvestris, thunbergiana*

Tolerant JBC schedule

*contorta*

Seedlings tolerant 64g/3 hr/10°-14°C (33)

*contorta, latifolia, thunbergiana*

Tolerant schedule for pine shoot moth, injured when air  
temperature above 15.6°C (12)

*mugo, nigra, sylvestris*

Mostly tolerant to schedule for pine shoot moth at all  
temperatures (112)

*mugo, sylvestris*

Seedlings slight injury 64g/3 hr 24 min at 7.8°-8.9°C (11)

*pinaster*

Scions - storage time and moisture important cause of  
mortality before fumigation; method of grafting  
after fumigation very important. Mortality of  
scions greater after 7 days storage for fumigated  
than unfumigated (32)

*sp.*

Not tolerant 40g/5 hr/15°C (77)

Not tolerant 30g/8 hr or 40g/6 hr at 15°C (78)

*Pistacia*

*sp.*

Budwood injury reported by importer 32g/2 hr/26.7°-  
29.4°C (no untreated budwood)

*Pittosporum*

*eugenioides*, *tenuifolium*, *tobira*, *undulatum*, *viridiflorum*

Plants in good condition initial injury but soon  
recover 32g/2 hr/26.7°-29.4°C (81, 102)

*glabratum*

Plants active growth tolerant 32g/1½ hr and 2 hr/  
21.1°C (38) 40g/1½ hr/21.1°C (15) mature leaves  
dropped

*rigidum*

1 plant active growth tolerant 32g/1½ hr/21.1°C (38)

*tobira*

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at  
26.7°C (19)

*sp.*

In soil tolerant 8g/4 hr/30.6°C (41)

*Platanus*

*orientalis*

Dormant plants tolerant JBC schedule (15, 20, 109)

*sp.*

Tolerant 32g/2 hr/26.7°-29.4°C (102)

*Platycerium*

*madagascariense*

Tolerant 40g/2 hr/21.1°C

*sp.*

Small greenhouse plants tolerant 32g/2 hr/15.6°-20.6°C

*Platyclinis* (See *Dendrochilum*)

*Platycladus* (See also *Thuja*)

*orientalis*

Tolerant JBC schedule (15, 20, 40, 101, 109)

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at  
26.7°C (19)

*Platycodon*

*grandiflorum*

Tolerant JBC schedule (101)

*Plectranthus*

*sp.*

5 plants active growth tolerant 32g/1½ hr/21.1°C  
some tip burn (38)

2 plants active growth tolerant 32g/2 hr/21.1°C (38)

*Plumbago*

*indica*

Tolerant JBC schedule (101)

Podocarpus

macrophyllus

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)

In soil tolerant 32g/2 hr/21.1°C (83)

nagi

1 plant active growth tolerant 36g/1½ hr/21.1°C (38)

Podophyllum

hexandrum

Dormant plants tolerant 32g/2 hr/21.1°C (38)

Poinsettia (See Euphorbia)

Polemonium

caeruleum, humile (=boreale or reptans)

Tolerant JBC schedule (101)

Polygonum

aubertii

Plants mostly dormant tolerant JBC schedule (15, 20, 101, 109)

Polypodium

aureum cv, areolatum

Slight injury to small greenhouse plants 40g/2 hr/21.1°C

aureum cv fragrans

Small greenhouse plants not tolerant 48g/2 hr/10°-15°C;  
or 40g/2 hr at 15.6°-20.6°C or 24g/2 hr at 26.7°-  
31.7°C

aureum cv mandaianum

Small greenhouse plants not tolerant 48g/2 hr at 10°-15°C  
1 greenhouse plant tolerant JBC schedule (15, 20)

Polystichum

sp.

Considered intolerant (81, 102)

Populus

canadensis

15 plants tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109, 111)

sp.

Dormant plants tolerant 40g/2 hr/26.7°-29.4°C (102)  
Tolerant 60g/4 hr and 40g/6 hr/15°C (78)

Potentilla

argyrophylla

Plant active growth tolerant 32g/1½ hr/21.1°C (38)

fruticosa, nepalensis, tridentata, verna (crantzii or  
tabernaemontani)

Tolerant JBC schedule (101)



Poterium (See Sanguisorba)

Pothos (See Epipremnum)

Primula

malacoides, veris, spp.

Tolerant JBC schedule (15, 20, 101, 109)

Prosopis

chilensis, chilensis cv velutina

2 plants each active growth tolerant 32g/1½ hr/21.1°C (38)

Protea

spp.

Rooted cuttings tolerant 32g/2 hr/21.1°C. Note plants do not ship well.

Cut flowers tolerant except possibly cynaroides to 32g/2½ hr/21.1°C/vacuum 380 mm (105)

Prunus

ornamentals

carolinana

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)

glandulifera, persica, triloba, weeping cherry

Tolerant JBC schedule (101)

ilicifolia

Tolerant 32g/2 hr/26.7°-29.4°C (102)

serrulata

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (111)

tomentosa

Tolerant 32g/2 hr/21.1°C (38)

fruit producing

apricot

Tolerant 54g/4 hr/18.3°C (109)

Tolerant 40g/5 hr/15°C (78)

apricot, cherry, peach, plum

Tolerant 54g/4 hr/18.3°C (109)

Slight tipburn 64g/4 hr/21.1°C or 48g/5 hr/21.1°C (39)

Understocks tolerant 40g/5 hr/15°C (77)

cherry, plum

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109, 111)

cherry, plum, peach

Tolerant 36g/1½ hr/21.1°C (38)

Tolerant 40g/7 hr/21.1°C and 60g/4 hr/15°C (78)

nectarine

Tolerant 32g/4 hr and 48g/5 hr at 15.6°C (39)

Prunus (Continued)

fruit producing

peach

Tolerant 40g/6 hr/18.3°C (68)

Potted plants tolerant 64g/1½ hr/31.1°C, some scorching at 32.2°-35.6°C; tolerant with few leaves scorched 83g/2 hr/26.7°C; all leaves burnt but plants resprouted at 32.2°-35.6°C; some leaf scorch 110g/2 hr/18.3°C, plants killed at 27.2°-30.°C (72)

Tolerant 64g/1 hr/18.3°C (109)

plum

Tolerant 48g/3-3/4 hr/18.3°C or 64g for 3-3/4 hr at 5.0°C, injured 48g/2½ hr at 30°C (27)

Pseudotsuga

menziesii

Tolerant JBC schedule (101)

Psidium

guajava

Plants active growth tolerant with slight tip burn 32g/1½ hr/21.1°C. (38)

Initial injury but soon recover (81)

Pteris

cretica alexandrae, cretica rivertonia, cretica wilsoni, cretica wimsetti, ensiformis vitoriae

1 greenhouse plant each tolerant JBC schedule (15, 20)

cretica albolineata

Small greenhouse plants not tolerant 32g/2 hr/15.6°-20.6°C or 24g/2 hr/26.7°-29.4°C; slight injury 12g/2 hr/21.1°C

cretica parkeri

Small greenhouse plants tolerant 48g/2 hr/10°-15°C, slight injury 40g/2 hr/15.6°-20.6°C

cretica rivertonia, cretica umbrosa

Small greenhouse plants not tolerant 48g/2 hr/10°-15°C or 32g/2 hr/21.1°C; slight injury 32g/2 hr and 40g/2 hr at 15.6°-20.6°C

cretica wimsettii

Small greenhouse plants slight injury 48g/2 hr/10°-15°C and 40g/2 hr/21.1°C

ensiformis evergemensis

Small greenhouse plants slight injury 32g/2 hr/10°-15°C and 12g/2 hr/21.1°C; not tolerant 32g/2 hr/15.6°-20.6°C

*Pteris* (Continued)

*longifolia* (probably *vittata*)

Small greenhouse plants not tolerant 32g/2 hr/10°-15°C  
or 24g/2 hr/26.7°-29.4°C

*quadriaurita argyrea*

Small greenhouse plants slight injury 32g/2 hr/15.6°-  
20.6°C

Not tolerant 32g/2 hr/21.1°C and 40g/2 hr/15.6°-20.6°C

*tremula*

Small greenhouse plants not tolerant 32g/2 hr/15.6°-  
20.6°C or 40g/2 hr/21.1°C

Tolerant JBC schedule (101)

*Pterocarya*

sp.

Dormant plants tolerant 32g/2 hr/21.1°C (38)

*Ptychoraphis* (See *Rhopaloblaste*)

*Pueraria*

*lobata*

Tolerant JBC schedule (101)

*Pulmonaria*

sp.

7 plants tolerant JBC schedule (101)

*Pyracantha*

*angustifolia, coccinea*

Few plants each tolerant JBC schedule (15, 20, 101)

*coccinea*

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at  
26.7°C (19)

*fortuneana, koidzumii*

Not tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C or 32g  
at 26.7°C (19)

sp.

2 plants active growth tolerant 40g/1½ hr/21.1°C (38)

*Pyrus*

*communis*

In soil tolerant slight tip burn 48g/5 hr/21.1°C or  
64g/4 hr/21.1°C (39)

Tolerant 16g/6 hr/21.1°C or 32g/4 hr/21.1°C (2)

Tolerant 40g/2 hr/26.7°-29.4°C (102)

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109, 111)

Tolerant 48g/3 to 3-¾ hr/5°C (27)

Injured 48g/2½ hr/20°C and 32g/2¼ hr/30°C (27)

Tolerant 40g/5 hr/15°C (77)

Tolerant 50g/4 hr and 40g/7 hr at 15°C (78)

Tolerant 54g/4 hr/18.3°C (109)

Quercus

alba, macrocarpa, palustris

Tolerant JBC schedule (15, 20, 101, 109)

robor

Tolerant 48g/2 hr/21.1°C

sp.

Plants active growth tolerant 32 & 40g/1½ hr/21.1°C (38)



Randia  
sp.

Plants active growth tolerant 32g/1½ hr/21.1°C and  
refumigated 40g/1½ hr/21.1°C (38)

Ranunculus  
repens

Plants in flats tolerant 32g/2 hr/26.7°C-29.4°C (102)

Renanthera

coccinea, imshootiana, storiei

2 greenhouse plants each tolerant 28g/1½ hr/21.1°C (9)

imshootiana, scottiana

1-2 greenhouse plants each tolerant 32g/2 hr/21.1°C (9)

Rhamnus  
sp.

Plants active growth tolerant 32 & 40g/1½ hr/21.1°C (38)

Increasing severity of leaf drop and tip burn, plants

recover 32, 48, and 64g/1½ hr/21.1°C/vacuum 660 mm (107)

Rhapidophyllum

hystrix

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

Rheum

ribes

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

sp. (probably rhabarbarum)

Roots tolerant JBC schedule (101)

Rhododendron (See also Azalea)

arboreum, chartophyllum, rufescens, smirnowii, tshonoskii,  
yunnanense

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

fortunei, ovatum

Plants active growth tolerant 36g/1½ hr/21.1°C (38)

kurume hybrid azaleas

Tolerant 16g/16 hr/16.7°-21.1°C (47)

spp. and cvs.

Tolerant JBC schedule (15, 101, 109)

Leaf cuttings and scions tolerant 40g/2 hr/21.1°C

Rhodotypos

scandens (kerrioides)

Tolerant JBC schedule (15, 101, 109)

Rhopaloblaste  
augusta

Plants active growth tolerant 32 & 40g/1½ hr/21.1°C (38)

Rhus

aromatica

Tolerant JBC schedule (15, 20, 101, 109)

sp.

Tolerant 32g/2 hr/21.1°C (38)

Ribes

nigrum, sativum

Tolerant 48g/4 hr/15°C (27)

uva-crispa

Tolerant 48g/2 hr/21.1°C

spp. (Currants and gooseberry)

Tolerant 40g/5 hr/15°C

Tolerant 60g/4 hr and 40g/7 hr/15°C (78)

Rollinia

sp.

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

Rooseveltia

frankliniana

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

Rosa

amblyotis, beggerana, brunonii, cymosa, moschata, omeiensis,  
rubrifolia, turkestanica?, tuschotica?, plus 73 spp.

Dormant plants tolerant 32g/2 hr/21.1°C (38)

noisettiana

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109)

spp. and cvs.

Tolerant 60g/4 hr/21.1°C; 40g/6 hr/15°C (78)

Dormant plants tolerant JBC schedule (15, 20, 101, 109)

Plants in active growth may be injured by JBC schedule  
(101)

Plants in active growth tolerance limit near 16g/2 hr/  
21.1°C (30)

Dormant plants tolerant 48g/2 hr/21.1°C; 48g/2½-3½ hr/  
15°C (27)

Cuttings some retardation in growth more than 32g/2 hr/  
24°C (34)

Recommended schedule 40g/2 hr/26.7°-29.4°C (102)

cut flowers

Not tolerant 32g/3½ hr/22°C, 16g/4 hr/30°C

*Rosmarinus*

*officinalis*

Tolerant JBC schedule (101)

*Rubus*

*lambertianus*

Plants active growth tolerant 32g/2 hr/21.1°C (38)

spp.

Plants active growth tolerant 32 & 40g/1½ hr/21.1°C (38)

blackberry and raspberry

Tolerant 40g/7 hr, 60g/4 hr/15°C (78)

*Rudbeckia*

*hirta*, *laciniata*, sp.

Tolerant JBC schedule (15, 20, 101, 109)

*Sabal*

*exul*

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

*sp.*

Plants active growth tolerant 32 & 40g/1½ hr/21.1°C (38)

*Saccharum*

*spontaneum*

Not tolerant 30g/1½ hr/26.7°C (50)

*Saccolabium*

*sp.*

1 greenhouse plant tolerant 32g/2 hr/16.7°C (9)

*Saintpaulia*

*ionantha*

Considered intolerant 32g/2 hr/26.7°-29.4°C (81, 101)

*kewensis* cv Blue Boy

Tolerant JBC schedule some injury reported (15, 20, 101)

*sp.*

Potted plants tolerant 40g/1½ hr/21.1°C/vacuum 660 mm (45)

*Salix*

*babylonica*

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109)

Tolerant 64g/1½ hr/21.1°C/vacuum 660 mm (111)

*babylonica*, *caprea*, *discolor*

Tolerant JBC schedule (15, 20, 38)

*Salvia*

*azurea*, *nemorosa*?, *officinalis*, *pratensis*

Dormant plants tolerant JBC schedule. Some injury reported probably to non-dormant plants (101)

*Sambucus*

*sp.*

Tolerant 64g/1½ hr/21.1°C/vacuum 660 mm some tip burn (107)

*Sanguisorba* (*Poterium*)

*obtusum*, *sp.*

Tolerant JBC schedule (101)

*Sanseveria*

*trifasciata*

Tolerant JBC schedule (15, 101)

*sp.*

Potted plants tolerant 16g/4 hr/29.4°C (112)

Tolerant 32g/2 hr/26.7°-29.4°C (102)



*Santolina*

*chamaecyparissus, pinnata*

Tolerant JBC schedule (101)

*Sapindus*

*mukorossi*

1 plant active growth tolerant 32g/1½ hr/21.1°C (38)

*Sarcococca*

*hookerana*

Plants active growth tolerant 32g/2 hr/21.1°C and  
40g/1½ hr/21.1°C (38)

*ruscifolia, saligna*

Plants active growth tolerant 32g/2 hr/21.1°C (38)

*Saxifraga*

*paniculata, stolonifera, sp.*

Tolerant JBC schedule (101)

*Scabiosa*

*caucasica, sp.*

Tolerant JBC schedule (101)

*Schinus*

*terebinthifolius*

Cuttings tolerant 64g/2 hr/32.2°C

*Schismatoglossis*

*neoguineensis*

1 plant tolerant JBC schedule (101)

*Schlumbergera*

*truncata*

Tolerant JBC schedule (15, 20)

Potted plants tolerant 16g/4 hr/29.4°C (41, 112)

Tolerant 40g/2 hr/21.1°C (39)

*Schomburgkia*

*sp.*

2 greenhouse plants tolerant 32g/2 hr/16.7°C (9)

Importer considered plants tolerant 32g/2 hr/21.1°C/  
vacuum 380 mm

Dormant plants tolerant 48g/2 hr/21.1°C (51)

*Schrebera*

*alata*

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

Sciadopitys

verticillata

Tolerant JBC schedule (101)

Scilla

sp.

Bulbs tolerant 48g/2 hr/21.1°C/vacuum 380 mm (114)

Scindapsus (See Epipremnum)

Scorzenera

sp.

1 plant active growth tolerant 32g/1½ hr/21.1°C (38)

Sedum

adolphi

Greenhouse plants severe injury JBC schedule (15, 20, 101)

Considered intolerant (81, 102)

ewersii, kamtschaticum, lineare, sieboldii, spectabile,  
stoloniferum

Tolerant JBC schedule (15, 20, 101)

Selaginella

braunii, emmeliana, involvens

1-4 plants tolerant JBC schedule some initial injury  
(15, 20, 101)

lepidophylla

Tolerant 32g/2 hr/21.1°C; not tolerant 96g/16 hr/  
21.1°C/vacuum 660 mm.

Semecarpus

sp.

2 plants active growth tolerant 32g/1½ hr/21.1°C (38)

Sempervivum

grandiflorum, montanum, tectorum, sp.

1-4 plants each tolerant JBC schedule (15, 20, 101)

tectorum

Tolerant 40g/2 hr/27.8°C

sp.

Tolerant 32g/2 hr/21.1°C some older leaves lost but  
recovered

Senecio

crassissimus, salignus

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

hybridus, multiflorus

Tolerant JBC schedule (15, 20)

*Sidalcea*

*malviflora*, *oregana*

Few plants tolerant JBC schedule (101)

*Sinningia*

*gloriosa*

Tolerant JBC schedule (101)

*speciosa*

Considered intolerant (81, 102)

Tubers tolerant 32g/2 hr/21.1°C

*Skimmia*

*japonica*, *reevesiana*

1 plant each tolerant 32g/1½ hr/21.1°C (38)

*japonica veitchii*

2 plants active growth 1 defoliated but recovered

32g/1½ hr/21.1°C (38)

*Sobralia*

*decora*

Greenhouse plants moderate injury but recovered

rapidly 28g/1½ hr/21.1°C (9)

*Solanum*

*melongena* (eggplant)

Tolerant 16g/16 hr/16.7°-21.1°C (52)

*pseudocapsicum*

Plants initial injury but recover 32g/2 hr/26.7°-

29.4°C (81, 102)

*sp.*

Dormant plants tolerant 40g/1½ hr/21.1°C (38)

*Spartium*

*junceum*

Initial injury but recover 32g/2 hr/26.7°-29.4°C (81, 102)

*Spiraea*

*bumalda*, *cantoniensis*, *rulandi*, *thunbergii*, *vanhouttei*

1-4 plants tolerant JBC schedule (15, 20)

*canescens*, *spp.* (5)

Dormant plants tolerant 32g/2 hr/21.1°C (38)

*cantoniensis*

Injured 44g/2½ hr/21.1°C; 38g/23.9°C and 32g/2 hr/  
26.7°C (19)

*spp.*

Tolerant JBC schedule (101, 109)

*Spirea* (See *Astilbe*)

*Stachys*

sp.

3 plants tolerant JBC schedule (101)

*Stanhopea*

*grandiflora*, *insignis*, *tigrina*, *wardii*

Greenhouse plants tolerant 32g/2 hr/16.7°C (9)

*oculata*

3 greenhouse plants tolerant 32g/2 hr/16.7°-29.4°C (9)

sp.

Greenhouse plants tolerant 28g/1½ hr/21.1°C (9)

*Stapelia*

*ambigua*, *flavirostris*, sp.

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

*cantabrigiensis*, *nobilis*

2 plants each active growth tolerant 32g/2 hr/21.1°C (38)

*variegata*

Dormant plants tolerant 32g/2 hr/21.1°C/vacuum 380 mm (110)

Dormant plants tolerant 32g/1½ hr/21.1°C/vacuum 380 mm (109)

*Statice* (See *Armeria*)

*Steironema* (See *Lysimachia*)

*Stenomesson*

*variegatum*

Plants active growth tolerant 32g/1½ hr/21.1°C (38)

*Stephanandra*

*incisa*

Tolerant JBC schedule (15, 20, 101, 109)

*Stephanotis*

*floribunda*

Considered intolerant (81, 102)

*Stokesia*

*laevis*

Tolerant JBC schedule (15, 20, 101, 109)

*Stranvaesia*

*dauidiana*

Tolerant JBC schedule (15, 20)

*Strelitzia*

*reginae*

1 plant active growth tolerant 32g/1½ hr/21.1°C (38)

2 greenhouse plants tolerant JBC schedule some older  
leaves lost (15)

2 plants reported injured JBC schedule (101)

Tolerant 40g/1½ hr/21.1°C/vacuum 660 mm (44)

*Strelitzia* (Continued)

sp.

Tolerant 48g/2 hr/15-20°C/under vacuum (76)

*Syagrus* (See *Microcoelum*)

*Sycopsis*

*sinensis*

Plants active growth tolerant 40g/1½ hr/21.1°C (38)

*Symphoricarpos*

*albus, chenaultii, orbiculatus*

Plants tolerant JBC schedule (15, 20, 101, 109)

*Syngonium*

*podophyllum*

Potted plants tolerant 16g/4 hr/29.4°C (112)

Plants active growth severe injury but recover JBC  
schedule (15, 20)

Tolerant but near limits 40g/2 hr/26.7°-29.4°C (102)

*Syringa*

*vulgaris, cvs*

Tolerant JBC schedule (15, 20, 101, 109)

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109, 111)

sp.

Dormant plants tolerant 32g/2 hr/21.1°C (38)

Plants balled or in pots tolerant 48g/2 hr/26.7°-  
29.4°C (102)

cut flowers

Tolerant 40g/2 hr/21.1°C (70)



**Tagetes**

cut flowers

Tolerant 40g/1½ hr/26.7°C/vacuum 507 mm (45)

**Tainea** (See *Ascotainia*)

**Tamarix**

*africana*, cv African Glow

Tolerant JBC schedule (15, 20, 101, 109)

**Taxus**

*cuspidata*

Tolerant 96g/1½ hr/21.1°C/vacuum 380 mm (109)

spp. and cvs

Dormant plants generally tolerant JBC schedule (15, 20, 40, 101) and to 40g/2 hr/21.1°C

Dormant plants tolerant 64g/1½ hr/21.1°C/vacuum 380 mm, few needles burned (111)

Plants in active growth may be injured by JBC schedule (101)

**Teucrium**

*chamaedrys*, sp.

Tolerant JBC schedule (15, 20, 101)

**Thalictrum**

*aquilegifolium*, *dipterocarpum*, *speciosissimum*

Few plants tolerant JBC schedule (101)

*rochebrunianum*

Dormant plants tolerant 32g/2 hr/21.1°C (38)

**Thea** (See *Camellia*)

**Theobroma**

*purpureum*?

3 plants active growth considerable tip burn

32g/1½ hr/21.1°C (38)

**Thermopsis**

*caroliniana*, sp.

Tolerant JBC schedule (101)

**Thuja**

*occidentalis globosa*

Tolerant 40g/1½ hr/21.1°C/vacuum 380 mm, and possibly higher dosages (109, 111)

*orientalis*

See *Platycladus*

*Thuja* (Continued)

*plicata*

Tolerant 96g/1½ hr/21.1°C/vacuum 380 mm (109)

Injured JBC schedule (20)

*spp. and cvs.*

Dormant plants generally tolerant JBC schedule  
(15, 20, 40, 101)

*Thunia*

*alba*

2 greenhouse plants tolerant 32g/2 hr/16.7°-25°C (9)

*Thymus*

*serpyllum, vulgaris*

Tolerant JBC schedule (15, 20, 101, 109)

*Tillandsia*

*imperious, punctulata, tricolor?*

Tolerant 28g/2 hr/16.7°C

*Tradescantia*

*fluminensis*

3 plants tolerant JBC schedule (101)

*Trema*

*sp.*

2 plants active growth tolerant 32g/2 hr/21.1°C (38)

Plants active growth tolerant 24g/2 hr and 32g/1½ hr/  
21.1°C (38)

*Trichopilia*

*suavis*

2 greenhouse plants tolerant 32g/2 hr/16.7°-22.8°C (9)

*Trichosma* (See *Eria*)

*Tripsacum*

*sp.*

Clones injured 48g/2 hr/21.1°C/vacuum 660 mm

*Trollius*

*europaeus* in var.

Tolerant JBC schedule (15, 20, 101, 109)

*Tropaeolum*

*majus*

Tolerant 16g/16 hr/16.7°-21.1°C (52)

*Tsuga*  
sp.

Dormant plants generally more tolerant than non-tolerant plants.

Dormant plants tolerant JBC schedule (15, 101, 109)

*Tulipa*  
bulbs

Tolerant 40g/1½ hr/21.1°C/vacuum 380 mm (109)

Tolerant 48g/2 hr/21.1°C/vacuum 380 mm (114)

Tolerant 48g/4 hr/21.1°C (113)

Tolerant 48g/2 hr/21.1°C but not 3 hr (14)

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109)

Not tolerant 96g/2¼ hr/18.3°C

Tolerant 64g/2¼ hr/21.1°C/vacuum 380 mm but not  
48g/2¼ hr/18.3°C/vacuum 660 mm

cut flowers

Tolerant 16g/1½ hr/26.7°C but petal drop with 20g (34)

*Tunica* (See *Petrorhagia*)

Umbilicus

rupestris

1 plant active growth tolerant 32g/2 hr/21.1°C (38)

- Vaccinium  
     corymbosum  
         Tolerant JBC schedule (101)
- Valeriana  
     officinalis  
         Tolerant JBC schedule (101)
- Vanda  
     spp.  
         Greenhouse plants tolerant 32g/2 hr/21.1°C (9)  
         Dormant plants tolerant 48g/2 hr/21.1°C (51)
- Verbena  
     sp.  
         Tolerant JBC schedule except 1 grower reported cv  
         Lemon killed (101)
- Veronica  
     spicata  
         Tolerant JBC schedule (15, 20, 101, 109)
- Viburnum  
     japonicum, odoratissimum  
         Injured by 44g/2½ hr/21.1°C; 38g at 23.9°C and  
         32g at 26.7°C (19)  
     plicatum  
         4 plants tolerant 64g/1½ hr/21.1°C/vacuum 380 mm  
         (109, 111)  
     suspensum, tinus  
         Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at  
         26.7°C (19)  
     spp.  
         Tolerant JBC schedule (15, 20, 101, 109) some stimula-  
         tion reported.
- Vinca  
     minor  
         Tolerant JBC schedule (15, 20, 101, 109)
- Viola  
     tricolor  
         Tolerant 40g/1½ hr/21.1°C/vacuum 660 mm (44)  
     spp.  
         Tolerant JBC schedule, occasional minor injury reported  
         (15, 20, 101, 109)  
         Plants in flats tolerant 32g/2 hr/26.7°-29.4°C (102)



*Vitex*

*agnus-castus*

Tolerant JBC schedule (15, 20, 101, 109)

*Vitis*

*trifolia*

Cuttings tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109)

grape plants and cuttings

Tolerant JBC schedule (101)

Tolerant 48g/2 hr/26.7°C (80)

Tolerant 40g/2 hr/21.1°C (31, 102)

Tolerant 72g/2 hr/22.2°-24.4°C (73)

*Vriesea*

*splendens*

Smaller plants died 32g/2 hr/21.1°C, larger plants  
injured

sp.

Considered sensitive

*Watsonia*

sp.

Bulbs tolerant 32g/7 hr/24.4°-26.1°C (3)

Plants tolerant 32g/2 hr/26.7°-29.4°C (102)

*Weigelia*

*florida*

Tolerant JBC schedule (15, 20, 101, 109)

Tolerant 64g/1½ hr/21.1°C/vacuum 380 mm (109, 111)

*Wisteria*

*japonica*

Tolerant 44g/2½ hr/21.1°C; 38g at 23.9°C and 32g at 26.7°C (19)

spp. esp. *floribunda* & *sinensis*

Tolerant JBC schedule (15, 20, 101, 109)

Xylobium

squalons

Greenhouse plants tolerant 32g/2 hr/16.7°-21.7°C (9)

Yucca

spp.

Tolerant JBC schedule (101)

Tolerant 48g/2½ hr/15.6°C

Tip cuttings-severe injury reported 48g/2 hr/21.1°C/  
vacuum 660 mm

Zantedeschia

aethiopica

Rhizomes tolerant 48g/17 hr/21.1°C

Rhizomes tolerant 80g/4 hr/21.1°C/vacuum 660 mm

but probably not tolerant 96g/3-4 hr/21.1°C vacuum

Zinnia

sp.

Cut flowers tolerant 40g/1½ hr/26.7°C/vacuum 505 mm

Zygopetalum

mackayi

Greenhouse plants considerable injury 32g/2 hr/21.1°C (9)

sp.

Greenhouse plants considerable injury 28g/2 hr/21.1°C (9)

Dormant plants reported tolerant 48g/2 hr/21.1°C/ vacuum

380 mm

## LITERATURE CITED

- (1) Andison, H. and W. T. Cram. 1952. Narcissus bulb fly control with methyl bromide fumigation and its effect on the flower production of greenhouse-grown narcissus bulbs. Sci. Agric. 32: 93-8.
- (2) Anon. 1953. Forsog med bekaempelse af paeregalmiden vad hjaelp af methylbromid. (Experiments on the control of Eriophyes pyri by means of methyl bromide). Medd. Forsogsy PlKult. 498. 2 pp.
- (3) Armitage, H. M. 1944. Commodity treatments. IN Twenty-fifth annual report period ending December 31, 1944. Calif. Dep. Agric. Bull. 33: 240-2.
- (4) Armitage, H. M. 1951. Commodity treatments. IN Thirty-second annual report period ending December 31, 1951. Calif. Dep. Agric. Bull. 40: 179-81.
- (5) Bestagno, G. and A. Santocchia. 1957. Prove disinfezzazione con bromuro de metile sotto vuoto, in apparecchiatura di laboratorio, di fiorin di garofano attaccati da Cacoecia (=Tortrix) pronubana Hub. ((Tests of the disinfestation of carnation flowers attacked by Cacoecimorpha pronubana with methyl bromide under vacuum in laboratory apparatus)). Ann. Sper. Agric. (N.S.) 11 (4) suppl. pp. xlvii-lxxv. (Abstract from Rev. Appl. Entomol 49: 148. 1961.)
- (6) Blanton, F. S. 1942. Methyl bromide for the control of the serpentine leaf miner in gerberas and notes on the insect's life history. J Econ. Entomol. 35:31-4.
- (7) Blanton, F. S. 1942. Methyl bromide fumigation for control of the narcissus bulb fly. J. Econ. Entomol. 35: 239-41.
- (8) Breakey, E. P. 1944. The effect of methyl bromide fumigation on the subsequent development of the Croft lily. J. Econ. Entomol. 37: 277-9.
- (9) Bulger, J. W. 1946. Control of orchid-infesting insects by vault fumigation with methyl bromide. USDA Bur. Entomol. Plant Quar. E-690. 28 pp.
- (10) Carlson, E. C. 1944. Methyl bromide fumigation of cabbage transplants. IN Entomology. Washington Agric. Exp. Sta. Bull. 455. p. 120.



- (11) Carolin, V. M. and W. K. Coulter. 1964. Testing partial atmospheric fumigation for eradicating European pine shoot moth on baled and bagged pine seedlings. USDA For. Serv. PNW-18. 8 pp.
- (12) Carolin, V. M., W. H. Klein, and R. M. Thompson. 1962. Eradicating European pine shoot moth on ornamental pines with methyl bromide. USDA For. Serv. Pac. NW Res. Pap. 47. 16 pp.
- (13) Carpenter, T. R. and E. T. Gammon. 1955. Methyl bromide gas treatments of dormant gladiolus corms and of sclerotia of Sclerotium rolfaei. Phytopathology 45: 520-1.
- (14) Davidson, R. H. 1958. A report on experiments for control of bulb mite. Ohio Flor. Ass. Bull. 348: 6., and errata correction Bull. 349: 6.
- (15) Donohoe, H. C., and V. A. Johnson. 1939. The effect on plants of methyl bromide fumigation in Japanese beetle treatment tests; preliminary report. USDA Bur. Entomol. Plant Quar. E-482. 14 pp.
- (16) English, L. L. 1941. The fumigation of camellias and azaleas with methyl bromide. Alabama Agric. Exp. Rep. 51: 44.
- (17) English, L. L. 1943. Fumigation of camellias and azaleas with methyl bromide. J. Econ. Entomol. 36: 737-43.
- (18) English, L. L., and G. F. Turnipseed. 1944. The fumigation of camellia and azalea cuttings with methyl bromide. J. Econ. Entomol. 37: 81-4.
- (19) English, L. L., and G. F. Turnipseed. 1946. Chamber for fumigating plants with methyl bromide. Alabama Agric. Exp. Sta. Circ. 93. 24 pp.
- (20) Fleming, W. E. 1972. Preventing Japanese beetle dispersion by farm products and nursery stock. USDA Tech. Bull. 1441. 256 pp.
- (21) Gammon, C. 1963. Treatment of geranium cuttings by methyl bromide fumigation. Calif. Dep. Agric. E-98. 1 p.

- (22) Gammon, C. and E. Gammon. 1954. Commodity and premises treatments. IN Thirty-fifth annual report period ending December 31, 1954. Calif. Dep. Agric. Bull. 43: 186-9.
- (23) Gammon, E. 1952. Commodity treatments. IN Thirty-third annual report period ending December 31, 1952. Calif. Dep. Agric. Bull. 41: 235-8.
- (24) Gammon, E. T. 1949. Commodity treatments. IN Thirtieth annual report period ending December 31, 1949. Calif. Dep. Agric. Bull. 38: 203-6.
- (25) Gammon, E. T. 1950. Methyl bromide fumigation of camellia cuttings. Calif. Dep. Agric. Bull. 39: 125-8.
- (26) Gammon, E. T. 1950. Commodity treatments. IN Thirty-first annual report period ending December 31, 1950. Calif. Dep. Agric. Bull. 39: 201-4.
- (27) Gostick, K. G. 1969. Phytotoxicity of methyl bromide to some plant hosts of San Jose Scale. Plant Pathol. 18: 94-6.
- (28) Gostick, K. G. and D. F. Powell. 1971. Phytotoxicity of methyl bromide to chrysanthemum cuttings. Plant Pathol. 20: 136-41.
- (29) Gurney, B. and D. G. Gandy. 1974. Methyl bromide for control of bulb scale mite, Steneotarsonemus laticeps (Halb.) Plant Pathol. 23: 17-9.
- (30) Hamilton, C. C. 1941. Toxicity of methyl bromide to the common red spider and to greenhouse roses. J. Econ. Entomol. 34: 232-7.
- (31) Hewitt, J. L. 1942. Nursery service. IN Twenty-third annual report for period ending December 31, 1942. Calif. Dep. Agric. Bull. 31: 182-8.
- (32) Hopkins, E. R. 1966. Influences of storage and fumigation treatments on the mortality of scions of Pinus radiata. Austral. For. 30: 115-24.
- (33) Ilnytsky, S. and J. R. Sutherland. 1975. Methyl bromide fumigation of lifted lodgepole pine seedlings for European pine shoot moth control. US For. Ser. Tree Planters Notes 26(4): 14-5, 23.

- (34) Junaid, A. H. M. and M. M. Nasir. 1956. Fumigation of cut flowers, rose cuttings and preserved dates with methyl bromide. Agric. Pakist. 6: 80-103.
- (35) Kido, G. S. 1941. Methyl bromide fumigation of strawberry planting stock to control Paria canella var. quadrinotata (Say). J. Econ. Entomol. 34: 766-8.
- (36) Lange, W. H. Jr. 1940. Tests with methyl bromide as a fumigant for larvae of the artichoke plume moth. J. Econ. Entomol. 33: 66-9.
- (37) Lange, W. H. Jr. 1955. Aceria tulipae (K.) damaging garlic in California. J. Econ. Entomol. 48: 612-3.
- (38) Latta, R. and W. H. Cowgill. 1941. Methyl bromide fumigation of greenhouse plants at the U. S. Plant Introduction Garden, Glenn Dale, Md. USDA Bur. Entomol. Plant Quar. E-526. 31 pp.
- (39) Latta, R. and A. C. Johnson. 1944. Methyl bromide fumigation of nursery stock for the oriental fruit moth. USDA Bur. Entomol. Plant Quar. E-614. 14 pp.
- (40) Latta, R. and A. C. Johnson. 1944. Seasonal changes in reaction of coniferous evergreens to methyl bromide fumigations. J. Econ. Entomol. 37: 261-3.
- (41) Livingstone, E. M. and G. R. Swank. 1941. Methyl bromide as a fumigant for pests of ornamental plants. J. Econ. Entomol. 34: 75-6.
- (42) Lounsky, J. 1939. Note sur la resistance des azaleas a la fumigation au bromure de methyle. Bull. Inst. Agron. Sta. Rech. Gembloux 8: 126-31.
- (43) Lounsky, J. and R. Vanderwalle. 1939. Observations sur le comportement de plantes d'azallees dans divers essais de traitement de desinsectisation. Bull. Inst. Agron. Rech. Inst. Gembloux 8: 52-8.
- (44) Mackie, D. B. 1938. Methyl bromide--its expectancy as a fumigant. J. Econ. Entomol. 31. 70-9.
- (45) Mackie, D. B. and W. B. Carter. 1937. Methyl bromide as a fumigant, a preliminary report. Calif. Dep. Agric. Bull. 26: 153-62.

- (58) Smith, F. F. and J. J. Fisher. 1958. The boxwood leaf miner. Penn. Dep. Agric. Gen. Bull. 497. v. 13 (12).
- (59) Smith, F. F. and R. Latta. 1939. Methyl bromide fumigation for mites on cyclamen. Flor. Exch. Hort. Trade World. Nov. 4.
- (60) Steinweden, J. B. 1945. Commodity treatments. IN Twenty-sixth annual report period ending December 31, 1945. Calif. Dep. Agric. Bull. 34: 175-9.
- (61) Steinweden, J. B. 1948. Commodity treatments. IN Twenty-ninth annual report period ending December 31, 1948. Calif. Dep. Agric. Bull. 37: 236-41.
- (62) Steinweden, J. B., D. B. Mackie, W. B. Carter and S. S. Smith. 1942. A single treatment for gladiolus corms to destroy all stages of the gladiolus thrips. Calif. Dep. Agric. Bull. 31: 31-9.
- (63) Swank, G. R. and R. Latta. 1950. Vacuum fumigation with methyl bromide to kill larvae of white-fringed beetles. J. Econ. Entomol. 43: 25-9.
- (64) Taylor, A. L. and C. W. McBeth. 1940. Preliminary tests of methyl bromide as a nematocide. Proc. Helminthol. Soc. Wash. 7: 94-6.
- (65) Thomas, P. R. 1965. Methyl bromide fumigation of narcissus bulbs infested with Ditylenchus dipsaci (Kuhn) Filipjev. Hort. Res. 5: 76-80.
- (66) Thygesen, T. and A. Bjerggaard. 1966. Control of the South African tortrix moth, Epichorista ionephela Meyr. by fumigation in vacuum chambers. Tedsskr. Planteavl. 70: 224-31.
- (67) Uilenreef, H. E. 1976. Bestrijding van Opogona subcervinella in Dracaena door begassing met methylbromide. Gewasbescherming 7: 45-8.
- (68) van der Linde, W. J. 1956. The Meloidogyne problem in South Africa. Nematologica 1: 177-83.
- (69) van Marle, G. S. 1944. Aantasting van begonia's door mitjen, behorende tot het geslacht Tarsonemus Can. et Fanz. (The infestation of begonia by mites belonging to the genus Tarsonemus.) Tijdschr. Plziekt. 50: 25-39.



- (46) Osburn, M. R. 1945. Methyl bromide for control of the pineapple mealybug. *J. Econ. Entomol.* 38: 612.
- (47) Orphanidis, P. S. and B. C. Betzios. 1968. Action toxique, immediate et residuelle, de fumigants et d'autre produits phytopharmaceutiques sur des plants d'arbres fruitiers. *Ann. Inst. Phytopath. Benaki n.s.* 8: 164-74.
- (48) Pradhan, S., H. F. Bhambhani, and S. R. Wahdi. 1962. Tolerance of mango saplings to insecticidal applications. *Indian J. Hort.* 19: 162-7.
- (49) Purnell, R. E. and N. G. M. Hague. 1965. Fumigation of agricultural products. XIX - Methyl bromide fumigation of narcissus bulbs infested with stem nematode, Ditylenchus dipsaci (Kuhn). *J. Sci. Food Agric.* 16: 421-4.
- (50) Rao, J. T. and A. S. Ethirajan. 1956. On methyl bromide as a plant fumigant. *Curr. Sci.* 25: 160-1.
- (51) Richardson, H. H. 1949. Methyl bromide fumigation of imported orchid plants. *J. Econ. Entomol.* 42: 650-2.
- (52) Richardson, H. H., A. C. Johnson, J. W. Bulger, A. H. Casanges, and G. V. Johnson. 1943. Studies of methyl bromide in greenhouse and vault fumigation. *USDA Tech. Bull.* 853. 20 pp.
- (53) Richardson, H. H. and F. J. Spruyt. 1951. Quarantine treatments to control golden nematode cysts-adhering to lily-of-the-valley pips: progress report with special reference to plant tolerance. *Plant Dis. Rep.* 35: 519-21.
- (54) Ritcher, P. O. 1941. Methyl bromide fumigation for destruction of the strawberry crown borer. *J. Econ. Entomol.* 34: 67-72.
- (55) Ritcher, P. O. 1944. Control of the strawberry crown borer by methyl bromide fumigation and with poison baits. *Kentucky Agric. Exp. Sta. Bull.* 468. 28 pp.
- (56) Seth, M. L. and T. K. Nariani. 1966. A note on methyl bromide fumigation of mango seedlings affected with the malformation disease. *Indian Phytopathol.* 19: 390.
- (57) Smee, L. and P. J. Setchell. 1973. Post-entry quarantine for imported plants. *Australian Dep. Health. Canberra.* 20 pp.



- (70) van Marle, G. S. 1952. Bladrollers in seringen. (Leaf-rollers on lilac). Tijdschr. Plziekt. 58: 191-6.
- (71) Wahdi, S. R. 1960. Tolerance of citrus saplings to insecticidal applications. Indian J. Entomol. 22: 121-6.
- (72) Wahdi, S. R. 1961. Tolerance of peach saplings to insecticidal applications. Indian J. Entomol. 23: 137-42.
- (73) Wahdi, S. R. 1964. Tolerance of grape cuttings to insecticidal applications. Indian J. Entomol. 26: 296-9.
- (74) Weismann, R. 1941. Untersuchungen über die biologie und bekämpfung der erdbeermilbe, Tarsonemus pallidus (fragariae Z.) Banks. (Investigations on the biology and control of the strawberry mite, T. pallidus). Landw. Jb. Schweiz 55: 259-329. (Abstract Rev. Appl. Entomol. 30: 90. 1942).
- (75) Wilmot, R. J. 1939. Fumigation of horticultural products. IN Florida Agric. Exp. Sta. Ann. Rep. 1937-38. p. 106.
- (76) Zandvoort, R. 1972. Bestrijding van Opogona subcervinella bij Strelitzia. Gewasbescherming 3: 95-6.
- (77) Fischer, H. 1967. Begasung von Baumschulmaterial mit Methylbromid zur Verhinderung der Einschleppung der San-Jose-Schildlaus (Quadraspidotus perniciosus Const.) in das Gebiet der Deutschen Demokratischen Republik. Nachrbl. dt Pflschutzdienst. (Berl.) (N.F.) 21: 132-4.
- (78) Fischer, H. 1967. Begasung von Frischobst und Baumschulmaterial mit Methylbromide und Blausaure zur Bekämpfung der San-Jose-Schildlaus (Quadraspidotus perniciosus Comst.). Arch. Pflschutz 3: 213-39.
- (79) Lange, W. H. and L. K. Mann. 1960. Fumigation controls microscopical mite attacking garlic. Calif. Agric. 14(12): 9-10.
- (80) Steinweden, J. B. 1946. Commodity treatments. IN Twenty-seventh annual report period ending December 31, 1946. Calif. Dep. Agric. Bull. 35: 206-8.
- (81) Fisher, T. W. 1963. A methyl bromide fumigator for an insectary. Calif. Agric. Exp. Sta. Ext. Serv. Circ. 520. 19 pp.

- (82) Steinweden, J. B. 1947. Commodity treatments. IN Twenty-eighth annual report period ending December 31, 1947. Calif. Dep. Agric. Bull. 36: 166-7.
- (83) Anon. 1958. IN 22nd biennial report for the period July 1, 1956 to June 30, 1958. State Plant Board Florida Bull. 13: 94-6.

UNPUBLISHED REFERENCES

- (101) Anon. 1941. Reports from growers of effect on plants of methyl bromide fumigation for Japanese beetle control. USDA Bur. Entomol. Plant Quar. 12 pp.
- (102) Anon. 1957. Manual covering fumigation of plants and commodities and approved types of equipment. Calif. Dep. Agric. Bur. Entomol. Looseleaf. Rev.
- (103) Donohoe, H. C. 1941. Methyl bromide fumigation studies: fumigation of gladioli stalks and other cut flowers. USDA Bur. Entomol. Plant Quar. Report 330. 6 pp.
- (104) Flink, P. R. and P. Brigham. 1960. Preliminary report on red pine nursery stock fumigation in Michigan Conservation Department Nurseries. Mich. Dep. Cons. For. Div. 5 pp.
- (105) Hillyard, P. 1972. Experimental consignment of *Proteas* to the U.S.A. S. Afr. Embassy. 4 pp.
- (106) Latta, R. 1938. The tolerance of roots of ramie to fumigation treatments. USDA Bur. Entomol. Plant Quar. Spec. Rep. 2. 3 pp.
- (107) Latta, R. 1938. The tolerance of certain sub-tropical and hardy ornamentals to vacuum fumigations with methyl bromide. USDA Bur. Entomol. Plant Quar. Spec. Rep. 4. (Serial #236). 6 pp.
- (108) Latta, R. 1938. A preliminary report on the fumigation of Cattleya orchids with methyl bromide to prevent entry into this country of a leaf miner, Mordellistena cattleyana. USDA Bur. Entomol. Plant Quar. Spec. Rep. 5. 27 pp.
- (109) Latta, R. 1939. Recommendation for methyl bromide fumigation of plants imported under special permit. USDA Bur. Entomol. Plant Quar. Serial 254. 19 pp.
- (110) Latta, R. 1941. The tolerance of dormant perennials to methyl bromide fumigation. USDA Bur. Entomol. Plant Quar. Spec. Rep. 300. 7 pp.
- (111) Latta, R. and G. E. Yerkes. 1939. Experiments on the tolerance of dormant nursery stock to vacuum fumigation with methyl bromide. USDA Bur. Entomol. Plant Quar. Spec. Rep. 8. 19 pp.
- (112) Livingstone, E. M. 1939. Fumigation with methyl bromide for white fringed beetle. USDA Bur. Entomol. Plant Quar. Rep. 240. 11 pp.

- (113) Mackie, D. B., J. B. Steinweden, and W. B. Carter. 1942. Methyl bromide fumigation of narcissus bulbs for the control of bulb flies and bulb mites. 7 pp.  
1943. Supplement for the treatment of Dutch iris, tulip, Croft lily, and grape hyacinth bulbs. 1 p.  
Calif. Dep. Agric. Nurs. Entomol. Serv. Mimeo.
- (114) Richardson, H. H. 1947. Tolerance of tulip, narcissus, hyacinth and scilla to methyl bromide fumigation. USDA Bur. Entomol. Plant Quar. Report. 5 pp.
- (115) Richardson, H. H. 1951. Summary of results of fumigation tests with Japanese lily bulbs 1951. USDA Bur. Entomol. Plant Quar. Report. 1 p.
- (116) Richardson, H. H., and H. Roth. 1954. Methyl bromide fumigation of ornithogalum (chinchinchee) flowers and banana cuttings. USDA Agric. Res. Serv. Spec. Rep. T-9. 5 pp.
- (117) Roth, H., and H. H. Richardson. 1958. Methyl bromide fumigation and other treatment tests on imported garlic. USDA ARS Spec. Report T-20. 6 pp.











